

MANUFACTURERS RECORD

A Weekly Newspaper Devoted to the Industrial, Financial, Railroad,
Mining, Contracting, Engineering, Building, and General
Business Interests of the South and Southwest

Vol. 69
No. 26

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Single Copy 15 Cents

In view of the situation
which now confronts this
country, this issue contains
a number of strong state-
ments regarding our un-
preparedness, and the people
responsible for this condition.

BALTIMORE, JUNE 29, 1916



First Aids

TO THE

Boiler Room

Climchfield Fuel Company
SPARTANBURG, S. C.

RALEIGH-POCAHONTAS COAL CO.,

NO. 3 CELEBRATED
POCAHONTAS
COAL

NEW RIVER
SMOKELESS
COAL



ROOMS 215-18-17
BOARS OF TRADE MARK

ANNUAL CAPACITY
1,000,000 TONS

NORFOLK, VA.

Does Your Power Plant Need Heat?

Is your boiler cold when it should be hot? Why not look for your power plant troubles in the coal? Consolidation Coals produce heat. Tell us what kind of a power plant you have, its location and its purpose, and we can name the kind of coal to fit.

Georges Creek Big Vein Coal, Somerset Smokeless Coal, Fairmont Steam Gas Coal, Millers Creek Block Coal and Elkhorn Coking, By-Product and Gas Coal. Each with a distinct and tested heating value.

THE CONSOLIDATION COAL CO.

INCORPORATED

F. W. WILSHIRE, General Manager of Sales
BANKERS' TRUST BUILDING, 14 WALL STREET
NEW YORK, N. Y.

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Northwestern Fuel Co., Pioneer Press Bldg., St. Paul, Minn.

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MANUFACTURING COMPANY

MILWAUKEE, WIS.

Power and Electrical Machinery

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Corliss Engines
Gas Engines
Electric Motors

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Pumping Engines
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Oil Engines, Etc.

Combined contracts for complete power units with undivided responsibility insure satisfactory service

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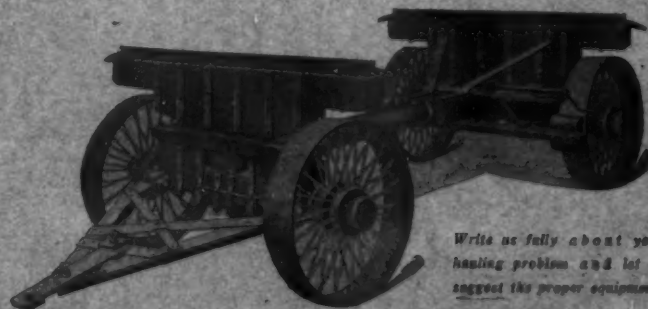
TRAILERS for factory, warehouse and dock use with industrial tractors. Special trucks designed and built to meet individual requirements

LUMBER HAULING EQUIPMENT—log wagons and carts, lumber buggies, planing mill trucks, and dollies. A truck for every lumber mill requirement.

TRACTION WAGONS for heavy hauling of all kinds, with bed or platform to suit requirements. 5 to 25 tons capacity. Many used in lumbering and mining.

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STEEL WHEELS, steel and wood axles, any size and capacity for every requirement.



Write us fully about your hauling problem and let us suggest the proper equipment.

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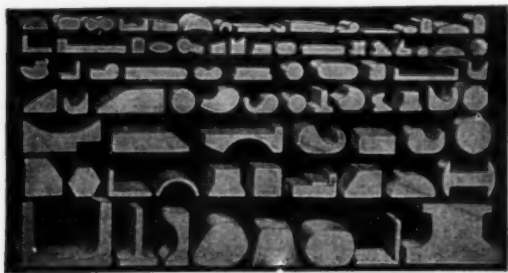
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2



Study in Bright Drawn Steel Shapes, as produced by the Union Drawn Steel Co.



The World's Largest Bright Finished Steel Plant

Where Quality and Service is the chief thought of the whole organization

Makers of Bright, Cold Finished Bessemer, Open-Hearth and Crucible Steel, in Rounds, Flats, Squares and Hexagons and Special shapes; Shafting, Duplicate Shafts for machine construction, piston and pump rods, cold-drawn flats for keys, feathers, slides and guides, car axles, elevator guides, etc.; special, simple and alloyed steels, Nickel, Chrome, Vanadium, etc., cold finished, for automobile parts and all special requirements.

Through our convenient warehouses our service is unequalled. To avoid any delay write the one nearest you for what you want out of stock or mill shipments.

Union Drawn Steel Co.

Main Office and Works—BEAVER FALLS, PA.

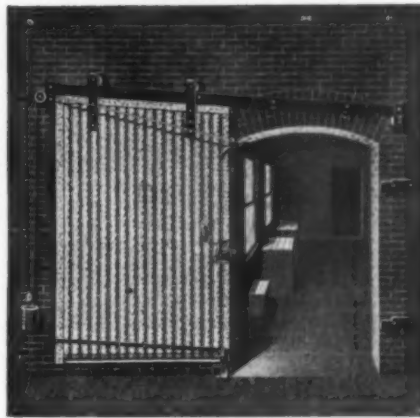
OFFICES AND WAREHOUSES:

New York, 400-406 Washington St.; Philadelphia, Ninth and Willow Sts.; Cincinnati, Spring Grove Ave.; Chicago, Jefferson and Monroe Sts.

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Buffalo, White Bldg.; Detroit, Mich., Dime Bank Bldg.; Boston, 96 Milk St.; Galveston, Tex., Texas Carnegie Steel Association, Agents; Brown Bros., Ltd., London, E. C.

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EVANS "ALMETL" FIRE DOORS

Rigid, all-steel indestructible construction—no wood to rot—no tin to rust—no seams to open—no thin covering to bruise—no expense for repairs. Evans "Almetl" Fire Doors have been given the very highest approval issued by the Underwriters' Laboratories of Chicago. Write today.

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HIGH-GRADE
ROOFING PLATES

FIRE-RETARDING
"STAR" VENTILATORS

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CLEVELAND

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CHICAGO
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Distributing Material to Storage Pile or Spoil Bank

THE LOOP LINE TRAMWAY

with its continuous procession of barrows may be readily adapted to the distribution of material anywhere along the line by the simple expedient of equipping the barrows with

drop bottoms, and the track with a movable tripping device which automatically unlatches the bottoms at any desired point.

This is but one of many services to which LOOP LINE TRAMWAYS are adapted.

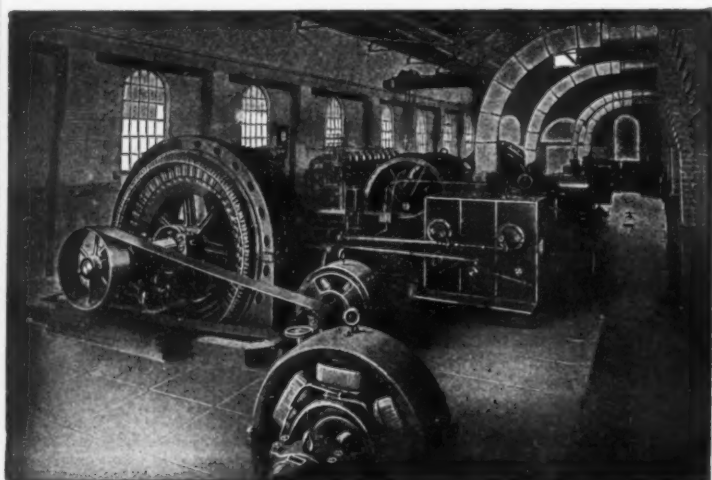
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AMBURSEN COMPANY

61 Broadway

New York City





A BALL INSTALLATION MEANS SATISFACTION TO THE OWNER

because every detail of these engines is built with an eye to service.

When you buy a Ball Engine you buy **reliability**. Is that the kind of an engine you want? Then write us

Engines built in several types to meet a variety of requirements.

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CORLISS ENGINES
50 to 10,000 H. P.

81 Years of Experience

GAS ENGINES
200 to 3000 H. P.



CORLISS ENGINES

Boilers of All Styles and Sizes
MURRAY IRON WORKS COMPANY
BURLINGTON, IOWA
INCORPORATED FEBRUARY 1, 1876
Engine on Exhibition in the Bourse, Philadelphia, Pa.

CALDWELL



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ELEVATOR BUCKETS MADE OF
STEEL AND MALLEABLE IRON

All Sizes and Gauges
Carried in Stock

"Helicoid Conveyors"

Catalog No. 38



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SNOW

50 to 1500 HORSE-POWER



**Full Speed and Full Load in less
than a minute**

The Snow Oil Engine

is always ready and always starts instantly.

Pull the starting lever and it will be up to speed and ready for full load in less than one minute. Because there are no hot bulb or other igniting devices to be heated and prepared for starting.

You can find out all about the Snow Oil Engine and its advantages by getting our Bulletin S130-29.

Worthington Pump and Machinery Corporation

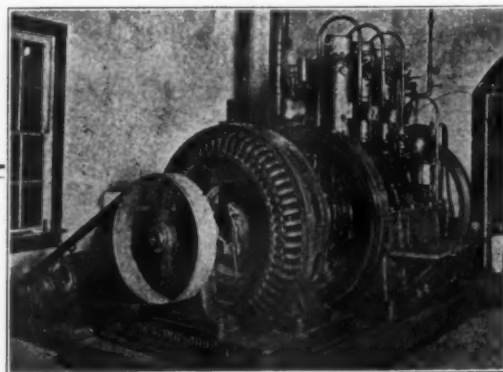
Successor to International Steam Pump Co.

115 Broadway, New York

Snow Steam Pump Plant, Buffalo, N. Y.

Branch Offices in All Principal Cities.

S171.2



OIL ENGINES

Cut the Payroll

The attention of only one man is required, and that only for a comparatively small part of each day. After starting up in the morning he need never go near the engine until time to shut down, except to see that the lubricator reservoir is filled and the fuel tank supplied.

Contrast this with the operating cost of a steam plant of the same capacity which would require at least one engineer, and perhaps the services also of one or two stokers and an oiler.

You can put a comparatively inexperienced man in charge of an M & W engine legally and with perfect safety—but the engineer of a steam plant has to be an expert, licensed by the city or state, and you pay a corresponding wage for his services.

Bulletin A-55 goes into detail on the matter, and is yours upon request. Write for your copy today.

August Mietz Machine Works

129 Mott Street

NEW YORK

71-23



Illustrating a storage battery truck with trailer hauling a load of lumber up an eight per cent incline, 225 feet long. This truck is equipped with an "Ironclad-Exide" Battery

Industrial Trucks for Hauling Lumber

Storage Battery industrial trucks are being adopted very widely for the handling of lumber. This is due to the large loads they will haul, the ease with which a load can be handled, the fact that they can be operated by ordinary workmen and the marked economy that results from their use.

The "Ironclad-Exide" Battery

is especially adapted for use in these trucks. It is the battery of long life, that gives a reliable every-day service, that requires very little attention and that is built to stand continuous hard service.

Lumbermen find that industrial trucks are big money savers. If you are interested we will send you a list of the prominent manufacturers of these trucks.

THE ELECTRIC STORAGE BATTERY CO.

1888 PHILADELPHIA, PA. 1916
New York Chicago Cleveland Denver Pittsburgh Rochester San Francisco Boston
St. Louis Atlanta Detroit Washington Toronto

Bruce-Macbeth
Gas Engines
Cleveland

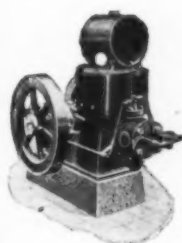
It will pay every user of power and electric current to look into a private power and light plant. It will surely lower present costs.

Send for This Booklet

The Bruce Macbeth Engine Co.
2133 CENTER ST. N.W.
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THE H. O. OIL ENGINE

2 TO 150 H. P.



STARTS AND OPERATES ON CRUDE OIL, FUEL, KEROSENE, OR ANY OTHER OIL.

LOWEST FUEL CONSUMPTION.

No batteries, magneto, coil, wire or switch.

No torch, hot tube, hot balls, or pre-heating.

IGNITION IS ABSOLUTELY AUTOMATIC AND UNFAILING.

Our catalog is interesting and convincing. Mailed on request.

THE ST. MARYS OIL ENGINE CO.

ST. CHARLES, MO.

MOTOR DRIVE

is safe, sure and economical. It means better work and more of it.

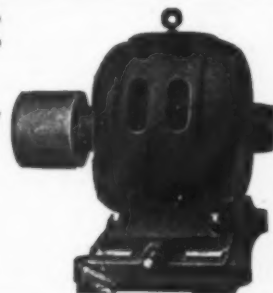
TRIUMPH QUALITY

stands for the best in Electrical Equipment. Investigate before buying.

WRITE FOR BULLETIN

THE TRIUMPH ELECTRIC CO.

CINCINNATI, OHIO



START AT THE COAL PILE

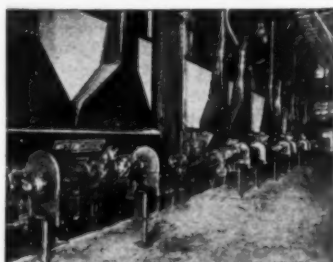
At the very bottom is the place to begin to economize

Do not underestimate the important part the stoker plays in securing good overall plant results.

Bear in mind that the "best" stoker is the stoker which fits into your conditions best—whether it be the Underfeed, the Overfeed, or the Chain Grate Stoker.

It is a fact, too, that many an installation has proven unsatisfactory because at the start the stoker, furnace, boiler and stack were not considered collectively in their proper relation to each other.

Let us help you select the right stoker and install it right.



Underfeed Stoker



Roney Stoker



Chain Grate Stoker

Westinghouse Electric & Mfg. Co.

PRIME MOVER
DEPARTMENT



EAST PITTSBURGH,
PENNSYLVANIA

108

BEST GRADE RENEWED LAMPS

Both Carbon and Tungsten Types

WE GUARANTEE YOU MOST FOR THE MONEY

BOSTON-ECONOMY LAMP DIVISION

National Lamp Works of General Electric Co.

128 Maple Street

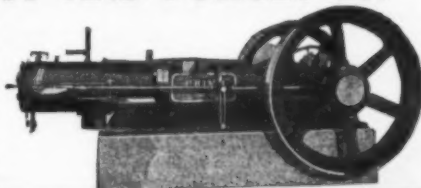
DANVERS, MASS.

START 'ER OFF AND FORGET 'ER

The **Primm Oil Engine** needs little attention. The construction is simple, and every part is made of only the best material. Runs on fuel, crude or solar oil, and distillate or kerosene. Investigate the Primm before buying any oil engine.

Illustrated Catalog gladly on request.

THE POWER MFG. COMPANY
Dept. 14 LIMA, OHIO



The CRESCENT OIL ENGINE

offers the most economical power for small plants.

Built in sizes—10 to 50 H. P.

Write for particulars.

SAMUEL L. MOORE & SONS CORPORATION

Main Office and Works, ELIZABETH, N. J. Chicago Office, 608 So. Dearborn St.



The Griffith & Wedge Co.

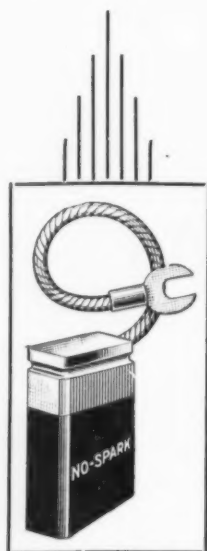
Established 1840

ZANESVILLE, OHIO, U. S. A.

Manufacturers of

The Ohio Corliss Engine

Send for Catalogue



SAFER AND CHEAPER

No-Spark Carbon
Brushes Reduce
Commutator Wear
90% : : :

They produce cool and sparkless commutation; prevent power losses and permit overloads without destructive sparking. Stop using the old-style gritty, sparking brushes on your motors and generators and increase their efficiency by using No-Spark—the quality brushes.

NO-SPARK CARBON BRUSHES

are a proven success. They are in successful use in hundreds of plants. Others have reduced maintenance cost and repair bills. Don't you really think you could use them to advantage for the same reason.

A set of the Calebaugh No-Spark Brushes will be sent you for 30 days' trial without cost to you.

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John B. Swift, Jr., 704 Fisher Bldg.,
Phone Harrison 6557.

Do It Now

Gentlemen:

Kindly send me a copy of your latest Bulletin fully describing No-Spark Self-Lubricating Brushes, together with full details of your 30 days' free trial offer.

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ALUMINUM
Feeder Cable Bare and Insulated
Transmission Cable
Aluminum-Steel Reinforced

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EXCEPTIONALLY LONG SPANS

ALUMINUM CO. OF AMERICA

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Automobile Supplies ELECTRICAL ACCESSORIES
QUICK DELIVERIES FROM A LARGE STOCK
PIEDMONT ELECTRIC COMPANY
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"EVERYTHING FOR A GAS PLANT"

Gas Holders, coal gas or water gas apparatus,
valves, tanks and all auxiliary equipment.

The Western Gas Construction Company
FORT WAYNE, INDIANA

HAVE YOU TRIED

WALL'S EVERLASTING-STEEL TORCHES and OILERS

They are Guaranteed. Write

The P. Wall Mfg. Supply Co.

Allegheny, Pa.

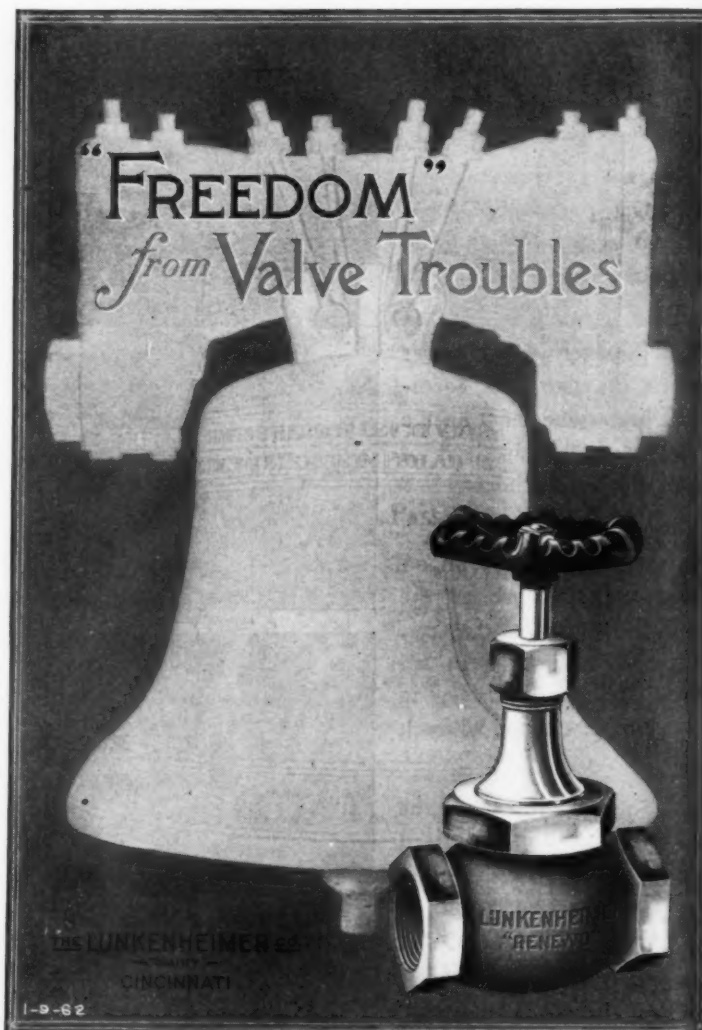
Foster Superheaters

APPLIED TO BOILERS OF ANY TYPE, OLD OR NEW

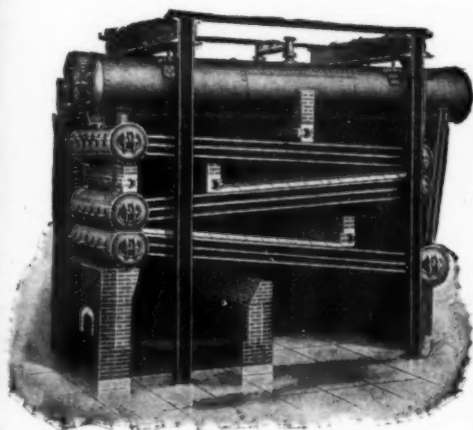
Uniform Superheat Guaranteed

POWER SPECIALTY COMPANY

111 Broadway, New York



BOILER USERS IT'S THE HEATING SURFACE OF VOGT WATER TUBE BOILER



that gives you such quick steam. The heating surface consists of three rows or banks of horizontally inclined tubes, connected by cross drums, and one vertical bank of tubes in rear of boiler connecting the steam drums with the mud drum.

This and other meritorious features will be gladly explained. Let us send catalogue.

Henry Vogt Machine Company

(INCORPORATED)

LOUISVILLE, KY.

Keeler Water Tube Boiler

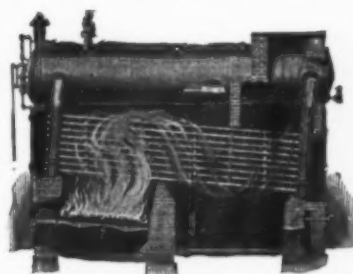
50 years of Boiler Building—
years without a shut-down—
years without an explosion—

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Established 1864

Williamsport, Pennsylvania

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Huntington, W. Va.
New Orleans



Has Many Exclusive Features

REILLY EVAPORATORS

furnish pure distilled water for all manufacturing purposes. Either cast iron or steel shells, fitted with helically wound brass Multi-coils, equipped with metal-to-metal joints free from brazing.



Write for Bulletin No. 304

THE GRISCOM-RUSSELL COMPANY

Engineers—Land and Marine—Manufacturers

2152 WEST STREET BUILDING, NEW YORK

Boston Philadelphia San Francisco Chicago

BOILERS TANKS STACKS

Pumps, Heaters, Injectors, Engine Supplies, and
Repairs for Mills, Hotels, Public Works. Try

LOMBARD IRON WORKS, Augusta, Ga.

HARTLEY BOILER WORKS

BUILDERS OF

HIGH GRADE

BOILERS

Stand Pipes, Self-Supporting Stacks, Tanks, Towers, all kinds of Structural and Plate Iron Work, Boiler Fronts, Grate Bars, all kinds of Castings.

MONTGOMERY, ALA.

THE LOOKOUT BOILER & MFG. COMPANY

TANKS—FOR ALL PURPOSES—BOILERS

STACKS, TOWERS, STANDPIPES, STEEL PLATE & SHEET METAL WORK

CHATTANOOGA, TENN., U. S. A.

THE CASEY-HEDGES CO., Chattanooga, Tenn.

Water Tube
Marine
Return Tubular

BOILERS

Special Plate and Tank Work. Offices—No. 443 Boliver Street, New Orleans, La.; Fractorian Bldg., Dallas, Texas. Main Offices and Works—Chattanooga, Tenn.

STOCK BOILERS

Constructed in accordance with the rules adopted by the American Society of Mechanical Engineers.

Better boilers cannot be made. They are offered subject to prior sale.

Write for Bulletin SB-M.

COATESVILLE BOILER WORKS

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30 Church St.

COATESVILLE, PA.

Philadelphia, Pa.
Morris Bldg.

BOILERS

TANKS



SMOKE STACKS
RIVETED PIPE
STEEL BARGES

GRATE BARS
FIRE FRONTS
STEEL BOILER SETTINGS

THE WALSH & WEIDNER BOILER CO.

MANUFACTURERS OF HIGH-GRADE

BOILERS

CHATTANOOGA, TENN.

Write us for Prices before placing your order

The "Farmer" Standard Grate Bar

Manufactured by

James River Foundry & Machine Co.

LYNCHBURG, VA.

Iron, Brass and Aluminum Castings

SPIROFLO —SURFACE —CONDENSERS

"Alberger—Always Ahead"

The complete development of proper engineering detail is demanded by modern power plant requirements in surface condensers. Location and dimensions of steam lane bleeders in these condensers distribute work done equally to all parts of the condenser and give highest rate of heat absorption.

ALBERGER PUMP & CONDENSER CO.
140 Cedar Street, New York City

THE BABCOCK & WILCOX COMPANY

85 Liberty Street, NEW YORK

BABCOCK & WILCOX—STIRLING—RUST

WATER TUBE STEAM BOILERS

STEAM SUPERHEATERS

MECHANICAL STOKERS

WORKS—BAYONNE, N. J.

BARBERTON, OHIO

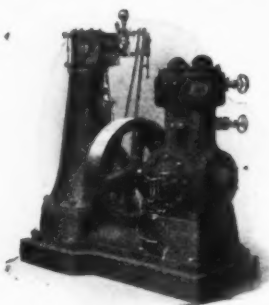
—BRANCH OFFICES—

Atlanta.....Candler Building
Boston.....55 Federal St.
Chicago.....Marquette Building
Cincinnati.....Traction Building

Cleveland.....New England Building
Denver.....435 Seventeenth St.
Havana, Cuba.....116 1/2 Calle de la Habana
Los Angeles.....American Bank Building

New Orleans.....Hubert Arcade
Philadelphia.....North American Building
Pittsburgh.....Farmers' Deposit Bank Building

Salt Lake City.....819 Atlas Block
San Francisco.....Sheldon Bldg.
Seattle.....Mutual Life Building



"Reports from practically all sections of the country declare that the ice harvest has been most unsatisfactory."—(Editorial.)

But this is not news. The Natural ice harvest is never satisfactory.

Mechanical Refrigeration

is always satisfactory, if installed the York way.

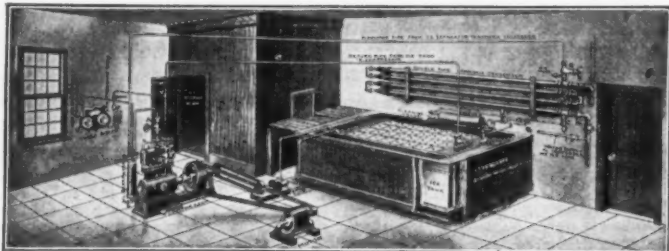
Then why continue using ice for cooling, when Mechanical Refrigeration is less expensive, more dependable, more sanitary and more satisfactory in every way? Be independent of the ice harvest.

We have a Branch Office near you, supervised by expert engineers, who will be glad to give you information and prices on a Refrigerating Plant best suited to your individual requirements. Shall we have them call?

YORK MANUFACTURING CO.

(Ice-Making and Refrigerating Machinery Exclusively)
YORK, PA.

CRYSTAL ICE from RAW WATER



Ice-Making Plants from one to eight tons capacity.

Portable Ice Plants, 300 pounds to 1000 pounds capacity.

Drinking Water Plants for Mills and Offices.

Refrigerating Plants for Cold Storage and all purposes.

Small Ice-Making and Refrigerating Plants Our Specialty

Over 20 Years' Experience

REMINGTON MACHINE COMPANY, Wilmington, Del.



Safety First Service Always

The business we are particularly proud of is our repeat orders—orders for additional equipment from old customers who are already operating one or more "H. & C. Safety" Compressors.

Our "come-back" business is a big business in itself and positively proves we have given a big value.

Write for an estimate on your requirements.

THE HUETTEMAN & CRAMER CO.

Refrigerating and Ice-Making Machines.

Detroit, Michigan

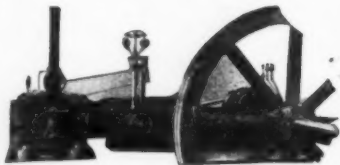
The Vilter Mfg. Co.

832 Clinton St. MILWAUKEE, WIS.

ICE-MAKING AND
REFRIGERATING MACHINERY

Corliss Engines

Brewers' and Bottlers' Machinery



Preparedness Safety First

Whatever the word used, the meaning is the same.

Your Ice Plant must be prepared to protect your business—no matter how hot the summer—nor severe the service.

Your machine must safeguard the money you've invested and the business you've created.

For this you must have the strongest, most reliable machine—the one that **always runs**—in short—the **Frick**.

Why delay your decision longer, when you know it's been doing this for 34 years.

Frick Company

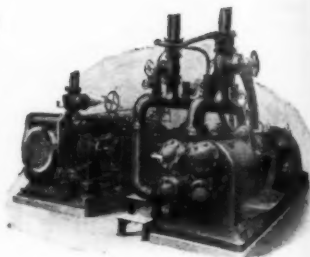
Waynesboro, Penna.

Baltimore, Md.

Dallas, Texas

Atlanta, Ga.

St. Louis, Mo.



BRECHT ICE MACHINES ^{1/2 to 20} TONS



For Hotels, Markets, Hospitals, Creameries, Ice-Cream Factories, Florists, Public Institutions, Residences, etc.

Also Portable Cooling Rooms, Special Refrigerating Boxes and Cold Store Doors.

THE BRECHT COMPANY

ESTABLISHED 1853

Dept. K 1225 Cass Ave.

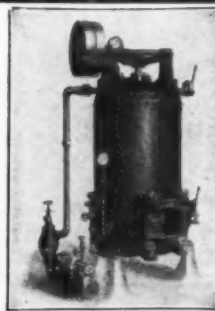
ST. LOUIS, MO.

NEW YORK: 176 Pearl Street
HAMBURG BUENOS AIRES

GRAVITY and PRESSURE FILTERS

HYPOCHLORITE APPARATUS and WATER SOFTENING PLANTS

The New York Continental Jewell Filtration Co., 15 Broad St., New York



Sanitary Rendering and Drying TANKS

From 3 to 30-Barrel Capacity

— FOR —

Packing Houses & Rendering Plants

The Junior Tank shown in illustration is made for small quantities, capacity three barrels.

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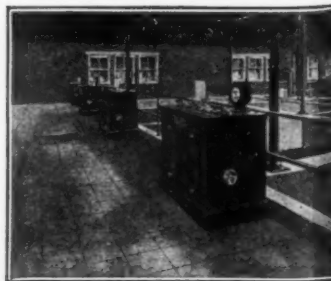
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We build Filters and Softeners for any purpose and of any capacity.

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Oil Separator and Purifier does not scale. The exhaust steam enters and leaves the heater at the top, passing inside of the seamless brass tubes, therefore the tubes cannot fill up with scale, as they do in other water tube heaters. This provides an oil separator and cool settling chamber in the bottom, where the sediment settles away from the tubes and remains soft until removed.

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If you need belting for use in damp places, Schieren's Duxbak Waterproof Leather Belting is the kind to do the work; for the leather, cement and workmanship of Duxbak makes it impervious to the effects of dampness of all kinds.

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THIS BELT IS WATERPROOF

Due to the heavy skim of rubber employed throughout. A slight
roughness of the surface permits the escape of air, which would
otherwise have a tendency to become pocketed between the belt
and the pulley. Stitches are protected from wear. These are a
few of the advantages of

GLADIATOR
FRICTION SURFACE
HIDDEN - QUILT - STITCHED
BELT

The friction surface allows a heavier load to be carried with less deteriora-
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absence of slipping. Less danger of separation and breakage of stitches, due
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Gladiator Belt also offers to dealers the advantage of carrying one stock
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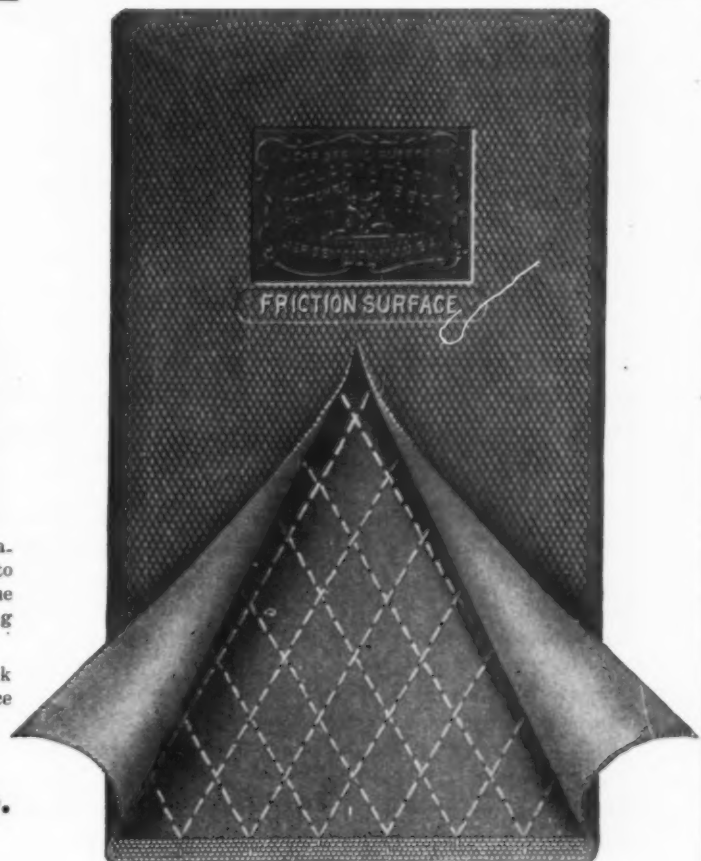
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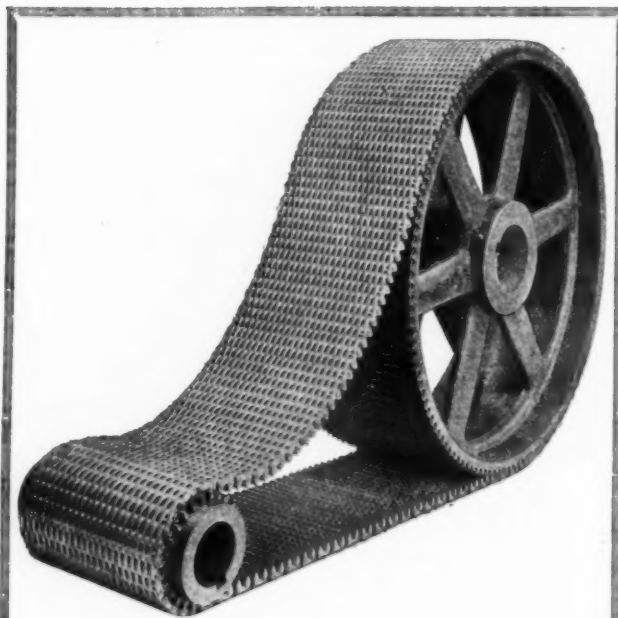
To Render You Even Better LINK-BELT Service

LINK-BELT Service is of three kinds. First, we render our customers an invaluable service when we furnish a perfected and more highly-efficient Silent Chain Drive than has ever been offered before.

Second, we render engineering service in helping customers make the best selection of Link-Belt Silent Chain Drives for their particular requirements. We send our Service Men to figure your drives, or if you prefer, send Data Book No. 125, our 112-page price-list, from which you can figure your own drives. We sell each drive complete and guarantee its satisfactory operation. Third, we render service in deliveries—we keep our delivery promises and aim to merit your absolute confidence in our product and our word. We never oversell.

Our experienced Designing and Engineering Betterment Corps, ever alert to point out ways and means of improving our manufacturing facilities, increasing our output, etc., has enabled us to operate and maintain an unusually high degree of efficiency throughout all our chain plants. But we nearly reached the limit of our capacity.

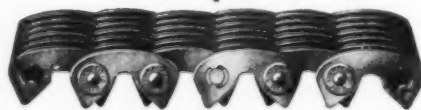
And so, to render you even better Link-Belt Service, we are erecting a new building, which includes three acres of floor space, shown above in process of construction. When completed, our normal capacity will be practically doubled. It will pay you, therefore, to specify Link-Belt Silent Chain for your power transmission. Remember, we never oversell, and we live up to promised deliveries.



Flexible as a Belt

Positive as a Gear

More efficient than either



Look for the name on the washers

Look for the liners in the joints

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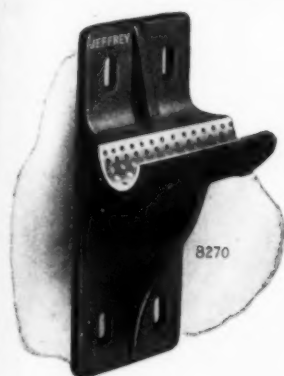
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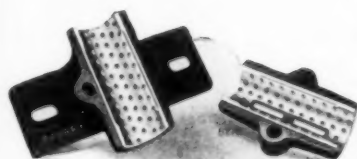
1. They are absolutely smooth, reducing all friction, insuring greater Economy of Power and Fuel in your plant.
2. They absolutely eliminate Hot Boxes, preventing Shut-Downs, Loss of Production and Labor Loss.
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Write for new Bulletin No. 179-26
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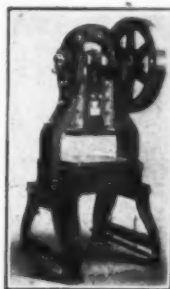
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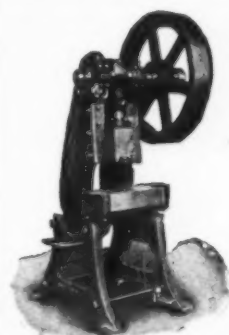
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We spare no money
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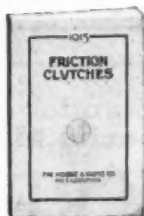
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"M & W" High Speed Friction Clutches

are the result of 30 years' experience in this line. Over 100,000 of them are being used. They are applicable to every style of machine. Friction clutches give better results than tight and loose pulleys. The mechanical

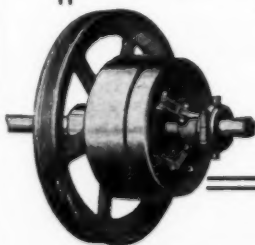
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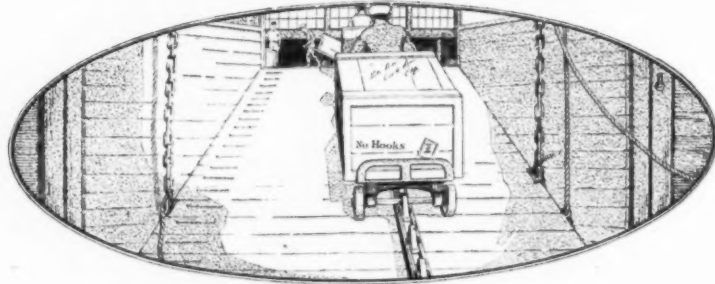
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It is only natural for man to let down a little once in a while, especially when the work is hard. Hauling loads of package freight from loading point to storage point is hard work. Keeping the truckmen going at top speed all the time is one function performed by the

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The chains of the Inclined Elevator can be regulated to move faster than the truckmen ordinarily walk—and pushed at a trot up the incline and then by the line behind, every truckman must maintain the extra speed the whole distance.

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MORE OF THEM ARE IN USE THAN ALL OTHER MAKES.
MORE OF THEM ARE USED EACH YEAR.

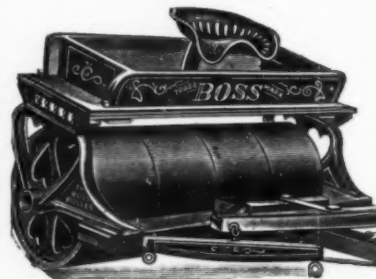
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Also Land and Lawn Rollers

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Shop tools must be accurate and their accuracy must be unvarying through hard service.

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Standard and Special Machine SCREWS

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Rivets, Studs, Threaded Wires,
Stove Bolts,
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Special Screws and Rivets
made to order. We please
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better than is usually supplied.

Get our prices, submit sample
and advise quantity desired.

Catalog for the Asking

THE PROGRESSIVE
MANUFACTURING CO.
TORRINGTON, CONN.

AND WE DON'T WONDER A BIT

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100,000 have no net income.

90,000 make less than \$5,000 a year.

60,000 make \$5,000 and over a year."

Only about one-fourth of the corporations get anywhere.

What is the reason?

Well, if you were exploiting Steam-Hydraulic Elevators you would know.

LACK OF BRAINS.

A management that buys a fine big motor car and a cheap, little elevator.

A thousand or two for show and style.

A hundred or two for work and profit.

Have you not noted the kind of corporations that are getting Ridgway Elevators?

Here is a sample of them—all big money makers.

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The management that does not look into an elevator proposition like this if steam is available, does not have Money-Making Brains.

1. Costs less to run. 3. Repairless.
2. Fool Proof. 4. Always goes at any speed.
5. Goes when engine shuts down.

NO PAY UNTIL MAKES GOOD.

The prosperous plants

"HOOK 'ER TO THE BILER"

THE RIDGWAY & SON CO., Coatesville, Pa.

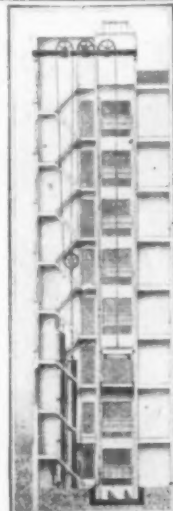
Elevator Makers to Folks Who Know



Direct Acting
Over 2000
in Daily Use



Double Geared



American Elevators Built by AMERICAN ELEVATOR & MACHINE CO. INCORPORATED LOUISVILLE KY.



FORD TRIBLOC CHAIN HOIST

A Chain Hoist with a patented loop hand-chain guide that protects the working parts and adds to the hoist's safety.

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HAND-BELT-ELECTRIC-HYDRAULIC PUMPS
Tank, Deep Well and Boiler Feeding
All Latest and Most Efficient Designs
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Passenger and Freight.
All Powers.

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PASSENGER

SAFETY FIRST
Then add Service Durability Built Right
After all, Economy in Price

THE
OHIO ELEVATOR & MACHINE CO.
COLUMBUS, O., U. S. A.

Passenger, Freight, Electric, Hydraulic, Belt and Hand Power
Now, if it's an Elevator, we are the party you want to see

FREIGHT

DUMB-WAITERS

FOR ALL PURPOSES

Our "COLUMBIA" machines have an automatic brake, holding the load at any point, are self-contained so that any good carpenter can easily erect them. Catalog also illustrates the "JUMPER" a floor-disappearing dumb-waiter

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OF
SHORT
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SERVICE**

WRIGHT High Speed Steel Hoists

The very last word in Chain Hoist construction. For hard continual service will outlast and outlast any other hoist on the market today.

The STEEL and MALLEABLE IRON construction makes this a hoist which is almost indestructible, thereby eliminating repairs for broken parts.

The New NON-FOULING Hand Chain Guide permits of raising and lowering the load by a chain pull from any angle and does away with the customary jerking and catching of the chain.

Also Manufacturers of

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Concrete

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Dustless
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Always Serviceable
Lowest Maintenance

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The experience of those communities which have built concrete highways has proven beyond question that concrete not only gives the most substantial construction, but also solves the perplexing question of maintenance because

Concrete Practically Eliminates Maintenance



With sand and gravel or crushed rock available locally throughout the South, and Portland Cement—manufactured here at home, the cost of Concrete roads is very very low. Concrete roads are an INVESTMENT—not an EXPENDITURE.

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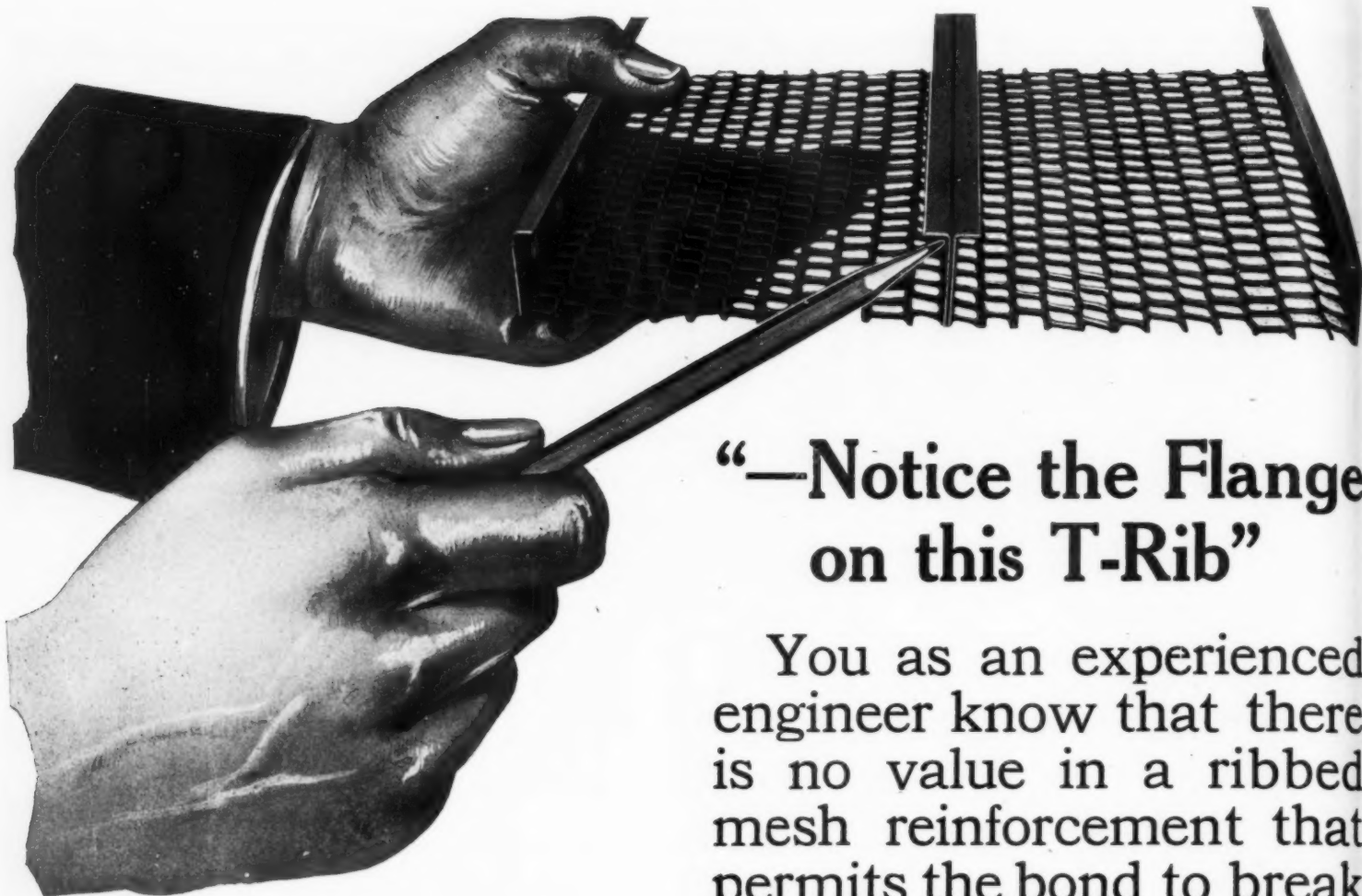
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This Is Point No. 3

There are 6
other reasons
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ASK FOR BOOKLET 74

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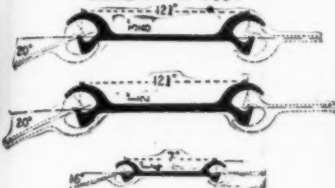
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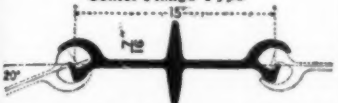
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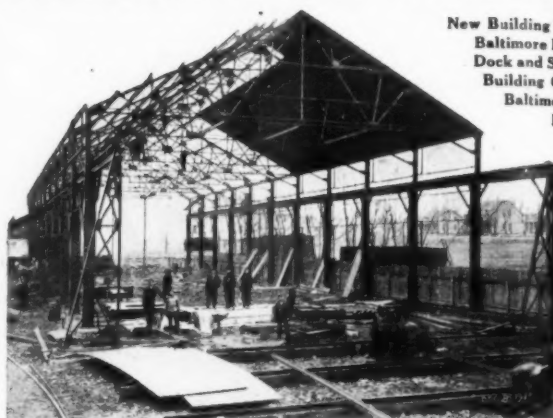
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JUNE 15, 1916

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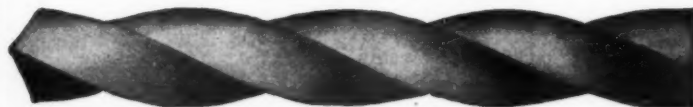
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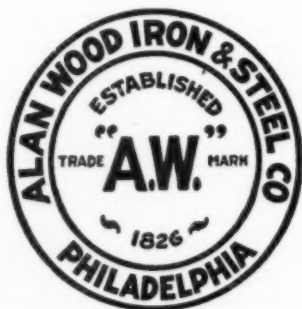


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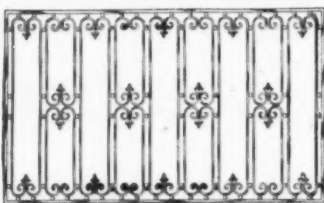
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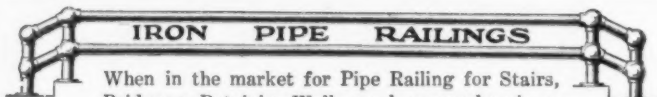
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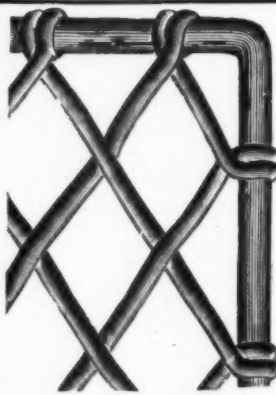


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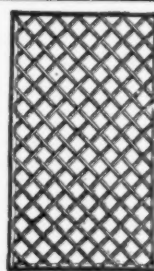
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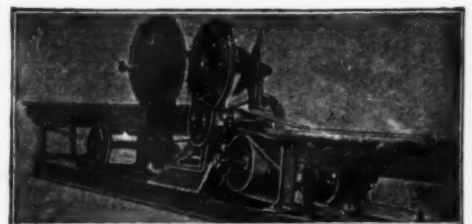
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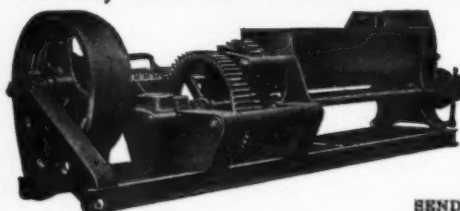
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Agents in Leading Cities or Apply Direct to Us for Samples

MORTAR COLORS



The Strongest and Most Economical in the Market

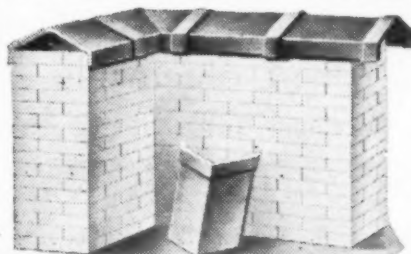
One half the amount of our Mortar Colors will do the work of any other, and they are unsurpassed in strength, fineness and body. Write for samples and quotations.

We manufacture a superior grade of Red Oxide of Iron Paint for Railroad Cars, Bridges, Barns, Fences, Etc.



Chattanooga Paint Co., Chattanooga, Tenn.

VITRIFIED SALT GLAZED WALL COPING



Gives a finished appearance to building, prevents dampness, does not decay like stone or other material, protects and binds the top course of brick. Prevents disintegration of mortar joints and consequent cracking of walls.

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Sewer Pipe Company
BIRMINGHAM, ALA.**

*Manufacturers of the
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Building Tile — Sewer Pipe — Fire Clay

Fireproofing, Fire Clay Flue Lining, Stove Flue Pipe and Tops, Thimbles, Wall Partition Tile, Farm Drain Tile, Fire Brick and Clay, Sewer Pipe, Wall Coping, Silo Blocks, etc.

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MILLEDGEVILLE, GA.

Manufacturers of Clay Products

ARCHITECTURAL CONCRETE

Building Trim, Church Tracery, Balustrades, Garden Furniture, Columns, Decorations in exposed aggregates a specialty. All Cast Granite or Marble Concrete. DETAILS ON APPLICATION.

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Clarksburg, W. Va.

MANUFACTURERS OF CONCRETE PRODUCTS

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Brookhaven, Miss.

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FINEST FACE BRICK

PRICES RIGHT

BRICKS—TILES—FIREPLACES

Every Kind—Impervious—Special Designs

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Red and Buff Dry Pressed Brick, Common Building Brick

GEORGIA-CAROLINA BRICK CO.

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Fancy Face Pressed Building Brick

In Many Colors and Shades

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HOMER WISEMAN, Sales Manager

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"Ratine" — "Cravennotte" — "Cherokee"

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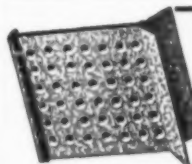
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Plaster Ornaments, Metal Windows, Doors, Brick, etc. Can save you money.

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For Building into Walls as a Base for Nailing. A first-class job can be done with them for less money than an inferior job without them.

Ask for Folder 57-M. Mailed on Request.

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Hardware Specialties. Niagara Falls, New York, U. S. A.



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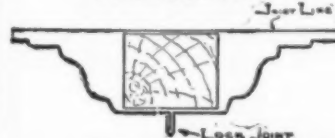
There is an Old Standard Paint for Every Purpose. We issue a full line of color cards free covering house paint, barn and roof paints, bridge and factory paints, floor paints, carriage and wagon paints, shingle stains, etc. Color cards sent on request.

O'CONNOR-SCHWEERS PAINT CO.

Manufacturers

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"STEEL CEILING"



See that Joint?

The Acme of perfect construction. Don't nail or slip the joints. Lock them. Full information in catalogue L.

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No. 7 N. Sharp St., BALTIMORE, MD.; PITTSBURGH, PA.



Better and Safer Roofs

are secured by using *high quality* Roofing Tin, with its positive protection from fire, lightning, storms and rain. **KEYSTONE COPPER STEEL TERNE PLATES** are the best obtainable—and make service a certainty.

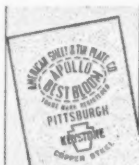
The Copper Steel alloy base gives greatest durability—actual service tests have proved it. These plates are accurately re-squared and uniformly coated, and every detail of their manufacture is right. Our booklet, "Copper—Its Effect Upon Steel for Roofing Tin" sent upon request.

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GALVANIZED
SHEETS



BLACK PLATES,
BRIGHT TIN PLATES,
STAMPING STOCK,
ETC.



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SHEETS



BLACK SHEETS,
OF EVERY
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ELECTRICAL SHEETS,
AUTO SHEETS,
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ETC.

TIN PAINTED METAL SHINGLES GALVANIZED

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Best and Cheapest Made by

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ROOFING GRAVEL

Mine-Run Screenings for Concrete and Road Construction
AMERICAN BALLAST COMPANY

1212 Holston National Bank Bldg.

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"From Mine to Market"

The above slogan was selected because it expresses in four words the big idea behind La Belle Iron Works.

We own every ore mine, limestone quarry, gas well and coal mine from which raw materials and fuels used in the manufacture of La Belle Open Hearth Steel products are obtained.

We are independent of the open market for these things, and this fact gives us complete control of the quality of our products "from mine to market."

La Belle Iron Works

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Works:
Wheeling, W. Va.

Works:
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BLUE ANNEALED SHEETS

Our capacity for Blue Annealed Steel Sheets is larger than ever before. All sizes 8 to 16 gauge inclusive for reasonably prompt shipments.

Write or Wire Specifications
for prices.

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GLESSNER
COMPANY

Portsmouth Works
Portsmouth, Ohio





Berger's "Classik" Ceilings in Haberdashery.

Beauty and Safety

That's what you want for the interior of your building—whether it be store, home, garage, office, church, school, theatre, etc. — and that's what you'll get if you install

"BERGER'S"
Classik
STEEL CEILINGS

These ceilings give an attractive, permanent, decorative, embossed finish at less cost than can be secured in any other way. Hundreds of attractive designs that harmonize with any class of architecture.

They are fire-retardant, and, unlike plaster ceilings, cannot crack, chip or fall down. Easily and quickly erected in old or new buildings of any type or size. Send for Catalog D. M. R.

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Minneapolis, San Francisco

Export Dept., Berger Bldg., New York

Berger's Metal Shingles make the ideal
roofing — attractive, durable and
economical. Write for
Catalog E. M. R.



Say "NO" to Flying Sparks

PROTECT your building against fire hazard by roofing it with CORTRIGHT METAL SHINGLES.

Fire can't burn them, like prepared roofings and wooden shingles. They won't crack and fly off in the heat of a neighboring conflagration, like slate and tile.

And CORTRIGHT METAL SHINGLES give permanent protection against the elements as well as against fire. They are handsome in appearance, and with a reasonable amount of care will last indefinitely. Write for booklet "Concerning That Roof."

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PRODUCERS OF **E. J. JOHNSON**
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SLATE BLACKBOARDS

CELEBRATED BUCKINGHAM VIRGINIA (NON-FADING) SLATE

Quality the Highest

RUSTIC SLATE— $\frac{1}{4}$ — $\frac{3}{8}$ — $\frac{1}{2}$ — $\frac{5}{8}$ — $\frac{3}{4}$ -inch thick.

Be sure to get our quotations before buying.

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PROTECTED BY ASBESTOS ROOFING

Means a SECURITY

and Freedom from Maintenance Expense insured through the use of Bramco Specification Built-Up Asbestos Roofing. Not only

More Durable
Lighter in Weight
More Economical—But
REALLY CHEAPER

Applied by Prominent Roofers Throughout the South.

Let us get in closer touch with your problems. A postage stamp will do it.

MANUFACTURED BY
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MAKERS OF THE BETTER KIND OF ASBESTOS AND ROOFING PRODUCTS.



A Roof Lesson from the Glorious Fourth

Every year the "Glorious Fourth" leaves an aftermath of a large number of roof fires caused by fireworks.

What adds additional pain to these painful recollections is the utter needlessness of such fires.

Why put a combustible roof on your house-top, when you can cover it with

Genuine Bangor Slate

Outlives the Roof Without Paint or Repair

Such a roof will not only resist fires, but time as well. The first cost is the last cost—there is no upkeep—no painting—no repairing.

Why? Because Genuine Bangor Slate is strictly non-porous, and non-absorbent, hence it does not disintegrate.

You will find it the most economical roof in the long run and reasonable in the first cost.

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Write for the free booklet today.

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Above the Ruins They'll Erect a Monument
of fireproof construction capped with a roof of

BONANZA CEMENT TILE

Do you realize the fire risk of
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Watch the next conflagration and note that the firemen direct their streams upon the roof, for the fire breaks through the roof *first*.

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Gravel Roofers and Sheet Metal Workers. We Specialize on Special Designed Work. We Recommend and Apply Barrett Specification Roofs. 20-Year Guarantee with Bond

Automatic Improved **DRYERS** Economical—Efficient
Great Capacity
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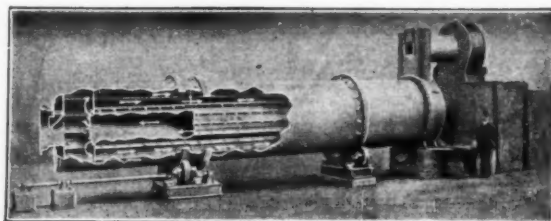
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Especially suitable for drying all kinds of GRANULAR MATERIAL
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"BUILT TO DRY AT THE LOWEST ULTIMATE COST"



There are now more than 500 Ruggles-Coles Dryers in operation, of which 119 have been sold on repeat orders. These machines are working on and drying 63 different kinds of material.

Write for details and let us
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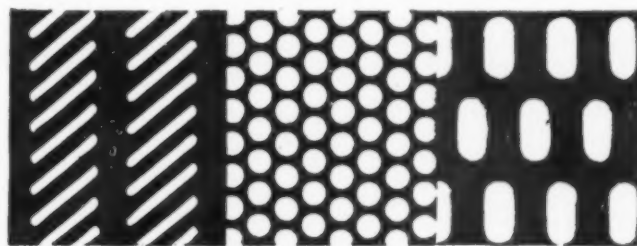
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GAS BURNERS, OR ELECTRICITY.Ovens Carried in Stock or Built to Meet Requirements of Manufacturers.
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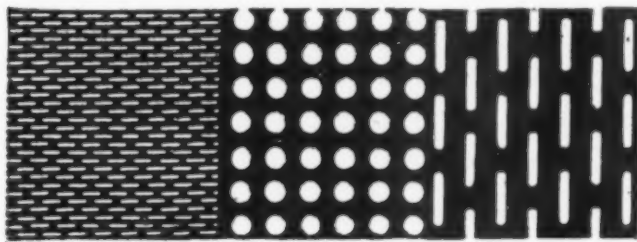
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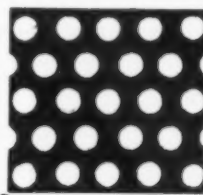
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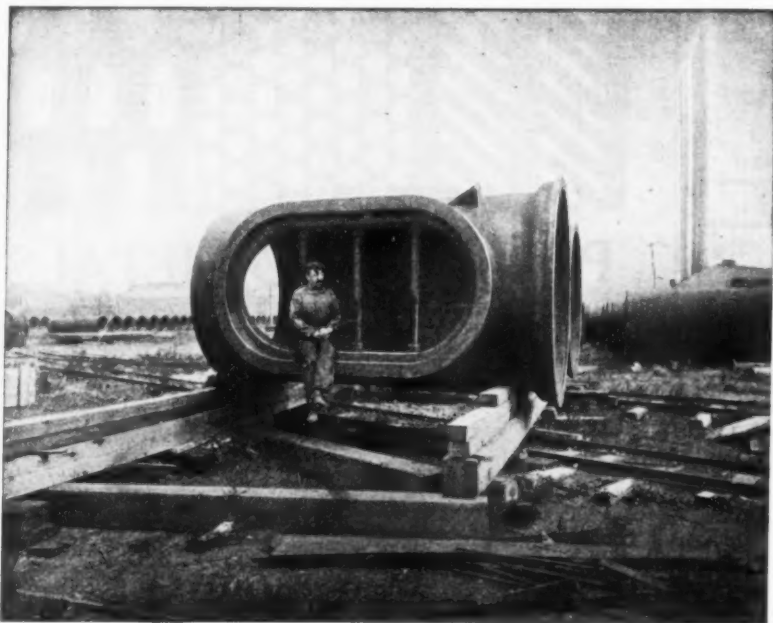
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WRITE FOR PRICES, FREIGHT AND FULL PARTICULARS.
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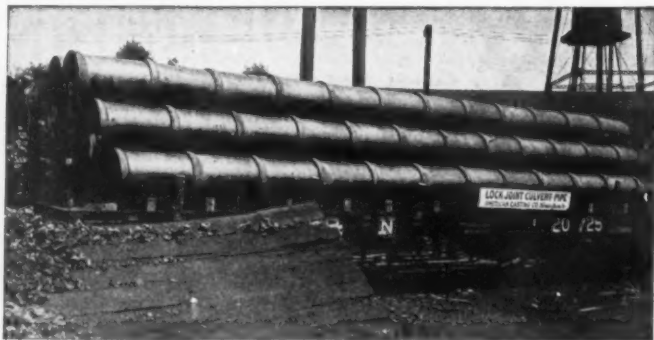
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NATIONAL LOCK JOINT Cast Iron Culvert Pipe

Some notable examples of its long service

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We make it especially for road culvert use—in 3, 4 and 5-foot lengths, equipped with our Lock-Joint feature to prevent separation. Sell it by the lineal foot remarkably close to temporary forms of material. It is handable, rollable, twistable, and, best of all, we have brought down the price of cast-iron pipe to where it is buyable.

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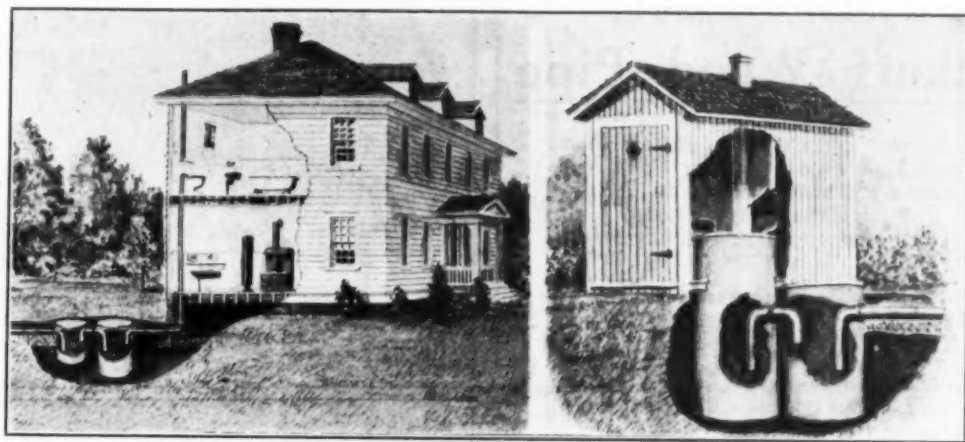
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Made with one, two
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"Sanisep" Portable Sewerage Systems

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The Perfect System for mill villages, suburban homes and schools, with or without running water.

"SANISEP" Tanks are made of reinforced concrete with solid bottom and are thoroughly waterproofed to prevent seepage. They require no cleaning out, no chemicals, are absolutely flyproof and will never become offensive.

They employ the L. R. S. or two-tank principle of sewage disposal, which was devised and is recommended by the United States Public Health Service, and which is recognized as being the most efficient known.

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Thoroughly Vitrified. None Better Vitrified Wall Coping
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POMONA, N. C.

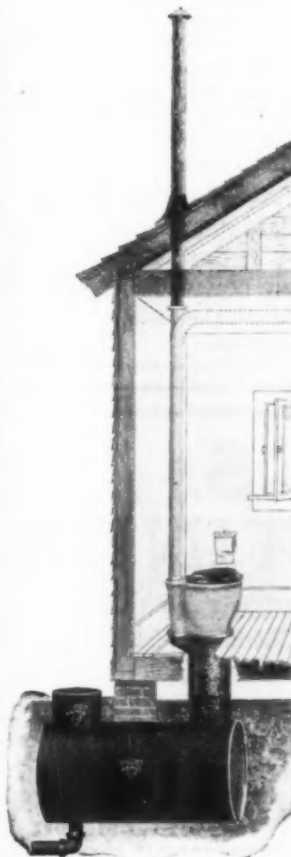
Simply set a Soule Steam Feed in place, bolt it down
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This Removes Biggest Health- Barrier In Your Mill Village



Besides burning, chemical treatment is the only genuine germ-killing method of sewage disposal. Government Health Officials declare this—and they know.

You lose thousands of dollars yearly because your present system doesn't finally dispose of the germs—it permits germ-breeding, followed by disease and the time-losing employee.

KAUSTINE Waterless & Sewerless Closets

Absolutely Destroy All Germs in
Sewage Matter, Reducing It to
Its Original Natural Substance
and Making It for Mingling
With Soil Elements Again

Kaustine is the most practical germ destroyer known.

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you can see why it's economical to use

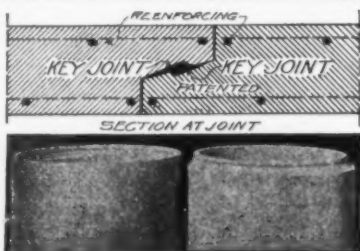
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much cheaper and easier to install than Cast Iron Pipe. Lasts as long. Delivers 15 to 20% more water when new and the longer it is used the less frictional loss. Over 50,000 miles in use and giving entire satisfaction.

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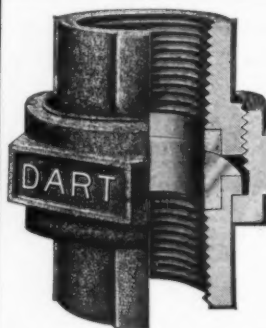
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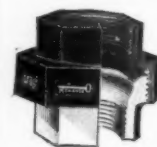
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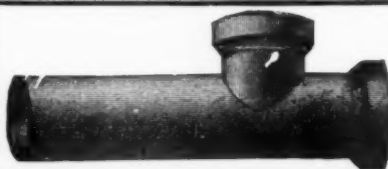
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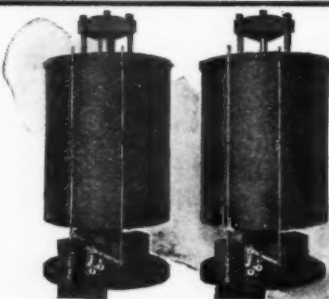
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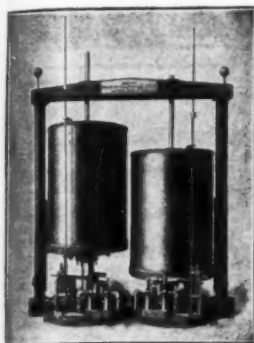
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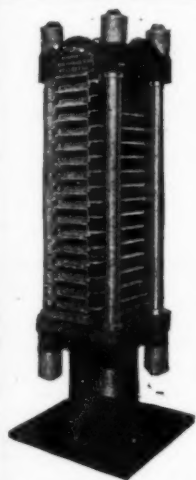
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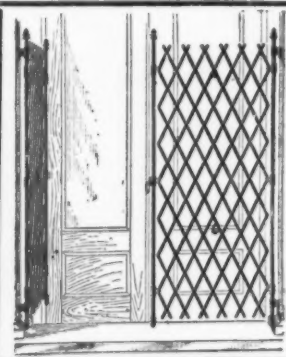
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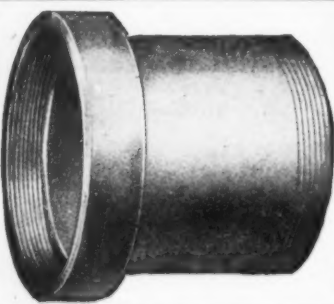
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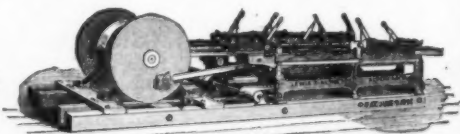
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Trade Name Registered in the U. S. Patent Office

Vol. LXIX. No. 26.
WEEKLY.

BALTIMORE, JUNE 29, 1916.

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In order to avoid delays, all correspondence pertaining to news or advertising matters should be addressed directly to the Manufacturers Record, Baltimore, Md., and not to individual editors, officers, employees or any branch office.

A SYLVESTER EDMONDS, a member of the editorial staff of the MANUFACTURERS RECORD, enlisted Monday in Troop A. Mr. Edmonds, who is 22 years old, is a nephew of Richard H. Edmonds, president of the Manufacturers Record Publishing Co.—Baltimore American, June 29.

CANNOT BUILD WATER-POWER PLANT WITHOUT GOVERNMENT CONSENT.

CHARLES K. WESTON, publicity manager of E. I. du Pont de Nemours & Co., Wilmington, Del., in a letter to the MANUFACTURERS RECORD referring to various reports that have been circulated about the building by that company of new plants in the South, says:

As a matter of fact, about 90 of 100 of these reports seem to be false, and in most of the cases if the person originating them would use a little good common sense he would save himself and other people a vast amount of trouble.

For instance, take these various reports about the company building water-power plants in the South or elsewhere. It is utterly impossible for us to build one of those plants without the consent of Congress. The Government controls all available water-power sites, and though we have asked that changes be made in the laws so that it will be possible for us to build a plant, Congress has not yet taken up our bill. With these facts in mind, you will be able to judge for yourself the truth or falsity of such a report when it comes to your office again.

We are very anxious to go into the business of making nitric acid from the nitrogen in the air. You are familiar with the recent fight in Congress which ended in the passage of a bill providing for a Government plant. Our proposition was to build a plant at our own expense, probably \$20,000,000, and make its output available to the Government, at the Government's own price, in the time of war. During peace times we would supply the Government with all the nitric acid it needs at a price to be fixed by the Government officials. All of this was set forth in great detail in a letter to Secretary of War Baker and in a bill which accompanied that letter. We feel that as a measure of both commercial and military preparedness the passage of such a bill is necessary. This company is the largest user of nitric acid in the world, and because of its relation to the Government we feel it should be allowed to take advantage of some of the natural resources of the country which are now going to waste.

SHIPBUILDING IN JAPAN.

THE Newport News Shipbuilding & Drydock Co., which has on hand about \$30,000,000 worth of work and is employing about 7000 hands, has, we believe, a larger aggregate of work, including merchant marine and Government shipbuilding, than any other yard in the country, but there is one shipbuilding plant in Japan employing more than 10,000 men, and large extensions are projected which will still further increase the number.

Upon the Non-Preparedness Leaders the Blood of the Slain Shall Rest.

FOR every death of American or Mexican troops in this war;

For all the sickness and suffering in camp or on battlefield;

For all the heartaches of mothers and fathers and other loved ones, as they live in fear of death to those who have gone forth at their country's call;

For all the millions of wealth spent in this war;

For all its fearful loss and fearful cost in men and money;

For all the evil passions aroused,

Those who have fought preparedness, or who failed to see the situation of our country in its unpreparedness, in or out of Congress, on lecture platforms, in the pulpit, or in official life or elsewhere from the highest to the lowest, will be responsible.

Upon the heads of these people the blame must ever rest. The blood of these men who suffer in camp or on the battlefield shall be upon them.

Had we been prepared there would have been no danger of war, for Mexicans would never have presumed to cross the American border if 50,000 or 100,000 well-trained and well-equipped men had been stretched along that border instead of the beggarly few which the United States was able to mobilize there.

"These anti-preparedness people meant well," you say, "and should not be condemned so bitterly."

The captain who refuses to study the stars and set his compass by them may mean well, but he will send his passengers straight down to death nevertheless.

The man who jokingly points the unloaded gun at his friend and pulls the trigger meant well, but the gallows or the penitentiary is the place for him, and preferably the former, because he is too big a fool to learn by the experience of hundreds of others.

And yet these men would be less blameworthy than the people afflicted with Bryanitis or the anti-preparedness craze. They are worse than the foolish captain or the fool who trifles with the unloaded gun. Any man of common-sense or of honesty could easily have foreseen present conditions. Only a fool or one wilfully blind could have been in the dark if he had cared to do a little quiet investigation as to the outlook.

And now that this clan, upon whom should rest the blood of every man killed and all the sorrow created by this war, has wrought this awful evil, will our people longer heed their voice, or will they forever bury them beneath an overwhelming load of a nation's supreme contempt for their false teaching?

We have been launched upon a stormy sea and no man can foretell the future, because, under the lead of this anti-preparedness propaganda, we did

not create, in the shape of a regular army, a police force to keep the nation's house from being invaded by burglars and murderers. As well might New York City undertake to say that we have reached a point where policemen are no longer needed and banish all of its police force and leave its people to be killed and its treasures to be looted, as for this nation to say it can afford not to maintain an army commensurate with its dangers and with the boundless wealth which invites any national burglar or murderer.

It is an unspeakable outrage that men of the National militia, moved by a spirit of the broadest patriotism, called from every business and profession, are compelled to leave their homes and risk their lives in defense of their country without adequate training, without adequate equipment, without adequate medical skill, without adequate transportation or commissary management, merely because we have lived in a fool's paradise and listened to the siren voice of men who have refused to open their eyes and see the truth.

In millions of homes throughout this country today there is sadness and weeping, and there will be more, because the nation, misled by these wilfully blind leaders, had no army as a police force to protect the country from invasion and its people along the border line from being murdered. The policeman is trained and equipped and, by years of work, fitted to cope with the dangers that he must meet as a guardian of a city's safety. To call upon untrained men without experience of any kind to do all the work of the police force of a city would be stupid from every point of view, but it is not one-half so stupid nor wicked as it has been for the nation to permit itself to continue in such a condition that it must call the very flower of its civilization, unequipped, untrained, subject to all the difficulties which will confront them in the far South, to do the work that a regular army ought to be doing.

This nation will some day have the chance to express its views upon the men in whatever walk of life, however high or low, who have refused for two years to properly interpret the Mexican situation, or to see the other dangers that we have faced and still do face. These men ought forever to be banished from all decent society and be outcasts from the presence of every honest man and woman.

MAKING READY FOR FUTURE BUSINESS.

ALBA B. JOHNSON, president of the Baldwin Locomotive Works, in a letter to the MANUFACTURERS RECORD, replying to an inquiry, says:

We have formulated our plans for fully utilizing our Eddystone plants at the close of the war, but at this time we do not care to make public what use we intend making of them, because it is impossible at present to say to what extent these plants may be altered by events over which we have no control which may occur during the intervening period.

The Nation's Responsibilities to Its Citizen Soldiers Vastly Increased by Its Culpable Inactivity in Preparedness.

THIS country should have learned from the difficulties under which England labored—difficulties which at one time seriously threatened its future—for we have known for the last two years, or, at least, every intelligent man who cared to study the situation has known, that we were not one-tenth as well prepared from every point of view as England.

It will be a black page in the history of this country when the present unpreparedness condition is told, though our country has had two years of such warning as no intelligent man should ever have dared to overlook.

Many newspapers, including the MANUFACTURERS RECORD, have, ever since the European war commenced, been pointing out with all the energy at their command our unprepared condition, our lack of munitions even to supply the men we had, our lack of men trained to do the police work of the country, if we simply put the army and navy on that small basis. That we have done nothing, or practically nothing, is now brought out clearly by the inability of the country to meet the needs of the State militia which has been called into camp, and is known by every enlisted man and by every other man who looks into the situation. The army officers are not responsible, but Congress and others are.

The Government is sending to the border line men who have never shot a gun; men who up to a few days ago had never been on horseback and yet are in the cavalry; men who are just out of the office, untrained, unhardened to outdoor life, and yet are being required to undergo hardships that are a disgrace to this Government and to civilization because all of this could have been prevented if Congress and the Administration had acted even with a fair degree of intelligence.

We may as well face the situation squarely and speak the truth, for the truth now refuses to be hid.

The army men have known the situation, and the men who have been pleading with the country for preparedness have known it; the members of the State militia have known it, and yet the Government, absolutely unprepared with the commonest necessities to make life in camp endurable or to train men for the work, is calling men to volunteer when every official responsible for this situation and every member of Congress who has not unceasingly fought to prevent it ought to forever hang his head in shame. When one visits the State militia encampments and mingles with the men, and sees how privates and officers on the altar of their country's service are offering their lives, a sacrifice made necessary by the unspeakable failure of this country, soft words would be futile; indeed, soft words would be a disgrace, as much so as the actions of the past of those responsible for present conditions.

These men, in the very flower of life, the best of American civilization, called without warning to drop business, to sunder home ties and risk the dangers of an inadequate medical service, the dangers of incompetent camp facilities, where disease will be almost worse than bullets, are displaying a spirit of heroism and a patriotism which should call forth the unstinted, the boundless admiration of the people of this country. These men are not taking up this work in any spirit of the love of adventure, but with a profound sense of duty, and every man who mingles

with them and talks freely with them will find that nothing else but an overwhelming sense of duty is the inspiring motive.

Such men as these, called to the front under conditions that disgrace our country and dishonor every man who has not unceasingly lifted up his voice during the last two years to bring about a change, deserve the very best that the country can give them, and yet to such men the Government's pay is almost as disgraceful as is our state of unpreparedness. To these privates, this, the richest country on earth, is paying the enormous sum of 50 cents a day plus food—smaller pay than the readers of this pay their cooks, and less pay per week to our soldiers risking their lives than the carpenter, or the bricklayer, or the blacksmith gets per day.

When, in recognition of this situation, a proposition was made by Senator Reed to increase the pay of these men and to make some provision for the families dependent on them, Senator Gore, whose presence in the Senate any longer will, we believe, be felt by all right-thinking people to be a disgrace to that body and to the country, antagonized the bill. Drawing \$7500 a year salary from the National Government, not one dollar of which he has ever, we think, fairly deserved for any good work done for the Government, he sarcastically denounced the proposition for the Government to look to the welfare of those dependent upon these men who are risking their lives, and, unfortunately, having to risk them for such men as Gore and his ilk, and this condemnation should apply to all who have joined him in this opposition.

Some of the troops have drummed out of the camps men whom they thought had acted dishonorably or showed a lack of courage. We think their action was wholly unjustified, because the men who faltered had suddenly been called upon to sign a six years' service to the Government without time for a moment's consideration of it, an unfair trick by those responsible for it; but what a blessing to this country it would be if the decent men in Congress—in the House and in the Senate—would have the moral courage to drum out of these bodies the men who, with years of opportunity to decide on their course of action, have stamped shame upon the nation's legislation!

LESS WHISKEY, FEWER CONVICTS.

AUGUSTA (GA.) CHRONICLE notes the fact that as prohibition begins to prohibit in that State the number of convicts begins to decrease. As Georgia works the convicts on the highways, there will probably be less road improvement in the State under prohibition than was the case when liquor was easily obtainable. However, prohibition would seem to be a good thing for the poor fellows who worked on the public highways without pay to atone for crimes committed while under the influence of liquor.—Rock Hill (S. C.) Herald.

If the Chronicle is correct, and the MANUFACTURERS RECORD has recently received a letter to the same effect, then prohibition has received one of the strongest endorsements that could possibly be given. If under prohibition, as now enforced in Georgia, the number of convicts is largely decreasing, then every honest, decent citizen in this country seeking the welfare of his fellow-man should work with unceasing energy to make prohibition national in order that the number of convicts throughout the land may be lessened and humanity thereby be lifted to a higher plane.

IN ENGLAND'S STRUGGLE TO OVERCOME ITS UNPREPAREDNESS AMERICA CAN LEARN IMPORTANT LESSONS.

A STUDY of England's fight to save itself from destruction by the creation of a supply of munitions, of heroic work that matches that of the soldiers in the camp, throws an illuminating light upon why England could not at the beginning match with its armies the work of its navy. The story is told in the News-Leader of Richmond, Va. In presenting these facts to its readers the News-Leader has done this country a service, for every man in the United States today needs seriously to be studying our unpreparedness in the light of what England's unpreparedness has cost that country in men and in money—and the money is as nothing compared with the men who have had to give their lives because of England's unpreparedness. In this review the News-Leader says:

The surest evidence that Great Britain has solved the munitions problem is that her public men are beginning to talk of last year's notorious shortage.

In doing so they admit that the situation was even graver than Sir John French's historic dispatch indicated. "The spring and early summer of last year," declared the Parliamentary Secretary of the Ministry of Munitions, in a public address last week, "will rank among the blackest days of the war. * * * Our men failed because they were short of munitions. We know now that our armies and the nation were on the verge of a great disaster. * * * At that time our gunners were being limited in some cases to three or four rounds per gun per day. Today they tell us that they have an abundance and that its quality is equal to anything possessed by their enemies."

The story of the industrial transformation that made this change possible is undoubtedly the most remarkable chapter in the new romance of whirling wheels and leaping lathes.

No sooner was Lloyd-George named Minister of Munitions than he took his industrial census; scarcely was the census completed before every manufacturer was urged to utilize his equipment for the army and navy. The results in some cases would have been amusing had they not been eloquent with a peculiar heroism. A glazier began to stamp out cartridge-clips; a manufacturer of music rolls used his equipment to make gauges; a concern engaged before the war in preparing infants' food is now delivering thousands of plugs for shell; an advertising agency is manufacturing shell-adapters; watchmakers are adjusting fuses; a manufacturer of baking machinery has become an expert contractor for 6-inch high-explosive shell; a jewelry house is devoting itself exclusively to periscopes; a phonograph concern is sending millions of delicate shell parts to the assembling stations; a firm which made nothing but sheep-shearing machinery is turning shell cases; a cream separator is at work on shell primers; the largest sewing-machine company in the kingdom is manufacturing gaines. Among other producers of finished shell are candle-makers, flour mills, tobacco manufacturers, syphon-makers and the manufacturers of sporting goods.

In some instances the adaptation of old plants to the making of munitions has been incredibly rapid. Thus the Government prevailed on a firm making textile machinery to take an order for field kitchens. The firm was one of the largest in Great Britain and employed some 8000 laborers; consequently it made over only one of its shops to furnish the field kitchens. Its workers had probably never seen one of these until they went to work, but in an amazingly short time they completed the delivery of what quartermasters described as the finest field kitchens they had ever had. Thus encouraged, the Ministry of Munitions prevailed on the company to begin the manufacture of 45 shell. The whole plant was readjusted, and is now reckoned one of the most reliable of all Government contractors. Another new explosive factory took on sixty hands to fill bombs. The weekly output at first was 500 a week. Since that time, though multiplying its labor force by only four, the factory is filling thirty times as many bombs. Still another which began with six girls filling 270 shells a week is now handling 2700 daily!

The credit for such achievements as these belongs not only to Lloyd-George and the manufacturers, but in a much larger degree to the workers, and especially to the women volunteers. Lloyd-George has mustered 195,000 women into the munitions industry, and has had them taught some of the most intricate processes of shell-making. One young dressmaker who volunteered was put at a machine which was supposed, in the hands of a good workman, to turn out thirty shell parts an hour. This woman's regular output is now seventy-five an hour. Another expert is a young typist, who had five brothers in the army. One was killed, another was disabled, and the others still bear their part of the fighting. Not to be behindhand in patriotism, this girl deserted the office for the factory, and is now one of the most expert machinists in the empire. The only fault her employers find with her is that her passionate hatred of the enemy keeps her at her work-bench during lunch time and after hours and makes her disobey every order to slow down.

Along with these heroic women work many men who have left unnecessary professions for the munitions plants. Lord Curzon's brother is a shell-turner; several members of the House of Lords are regular machinists, and in one city every lawyer and court official goes on Saturday after-

noon to a factory and works steadily, with just enough time off for sleep, until the sessions are resumed Monday. It is possible to measure, after a fashion, the effect of this industrial mobilization on the operations of the British army and navy. Movements are now feasible which a year ago would have been impossible. But who can measure the effect on British trade and manufactures of this new awakening, this new co-operation, this new recruiting? Merely to imagine the possible results is to be staggered.

PRESIDENT WILLARD OF THE BALTIMORE & OHIO RAILROAD GIVES THE RIGHT KIND OF PROMISE FOR OUR TROOPS.

"THE boys who are answering the call of President Wilson to mobilize are putting on their uniforms determined to follow the colors wherever they may have to go, and we, too, have enrolled in the colors for service and will do everything within our power to facilitate their movement. They shall have the right of way over everything else moving over our railroad except the President of the United States, and shall be treated exactly as if they were members of our individual families. Nothing will be left undone to make them as comfortable as possible, for the Baltimore & Ohio shall aim to be an efficient aid to the Government in this emergency and serve the country as earnestly as it did in the days of '61."—Extract from speech to officials and employes of the Baltimore & Ohio Railroad by President Daniel Willard.

In this statement President Willard pledges the Baltimore & Ohio to a service as painstaking and as careful of the comfort of the men who are being called to the country's defense as if they were members of the individual families of the officials of that road.

Less than that no American with the right soul in him could give; more than that none can give. It is in this spirit that every man, woman and child in the United States should meet this situation.

Every possible facility and comfort which the boundless wealth of the richest nation on earth could provide should be provided to insure the health and the lives of these men and to care for those dependent on them and from whom they have been called by the country.

But it is not enough that these things should be done by the Government as a government. They should be done by every railroad and by every other business interest, as well as by individuals everywhere. As these troops pass through the various cities on their way to the border they should be met and provided with any comforts that may be needed and with evidences of the love and esteem of the people for those who represent the nation's flag.

The women of Pittsburgh have given notice that no troops shall pass through that city hungry, but that provision will be made for feeding every troop train that enters the city. If at other places equal attention be shown, even if food cannot be provided, the journey of these men away from home to the border line of danger will be lightened.

President Willard has done wisely in making this statement. If he now will induce all other railroads in the country to co-operate on the same broad plan of humanity and patriotism, he will have done a good work for the nation.

HEAVY BAUXITE PRODUCTION IN ARKANSAS.

THE Board of Commerce of Little Rock in its Daily Bulletin of June 19, referring to the heavy increase in bauxite mining last year, calls attention to the fact that more than 90 per cent. of the entire bauxite output of the United States was in Arkansas, the balance for the country being produced in Georgia, Alabama and Tennessee, and to this adds the statement that the production in Arkansas would have been much greater had the railroads been able to furnish cars. The heavy bauxite mining operations in Arkansas are located about seven miles from Little Rock, and the owners of the property are reported to receive \$1 per ton royalty.

"ROLL OF HONOR OF BALTIMORE EMPLOYERS"—WHAT WILL THE SOUTH DO FOR THE SOLDIER BOYS?

UNDER the above heading the Baltimore Sun carries from day to day a list of firms and business concerns who promptly upon the call of the President for the State militia announced their intention of paying to any of their employes who were already in the militia, and thus subject to military duty, or any who felt compelled by a sense of duty to enlist, their full salary for whatever time they might, by being engaged in this war, be away from work. Upon many of these business organizations this drain of paying the full salary of the men who are away and then paying others who have to be employed to do their work will be very heavy, running far into the thousands of dollars.

This voluntary action on the part of one firm and another was not taken with any desire to induce men to enlist, but only to show to the men whose duty called them into the nation's service that those dependent upon them should not have to suffer. Similar action has been taken by many concerns throughout the country. It is, of course, not possible for all business interests to be able to do this; but, wherever it is possible, the men employed in the concern should be willing voluntarily to do additional work or by combinations of some kind make it possible for the firm, if it is not able to bear the burden alone, to carry this responsibility.

The MANUFACTURERS RECORD has made a study of the situation in Maryland, and doubtless what applies here is true elsewhere. Of the 5000 troops who are now in camp ready to move to the South, it might be said that they represent the very cream of the life of this State, not necessarily in wealth, but in devotion to duty and in recognition of their responsibilities. Bankers and lawyers and men of prominence in business affairs have quickly abandoned everything and answered the country's call, while young men with nothing but their salaries, but with a high sense of duty, have heard the same call and heeded it. In a rather careful effort to get at the sentiment of these men, we have not been able to hear of a single one who has gone for any love of adventure, but all the new men, as well as the old militiamen, have been inspired by the fact that the country needed them and it was their duty to answer. It would be impossible to place too high an estimate on the heroism of these men who, with full recognition of the dangers they are preparing to face, are assuming the responsibility. They are leaving loved ones and business at tremendous sacrifices.

What are the business people of the South going to do in meeting this situation? Are they, to the extent of their financial ability, going to encourage the enlisted men by endeavoring to make the burden a little lighter by the knowledge that those dependent upon them will not have to add to their sufferings the difficulties of financial inability to meet the pressing needs, while other men stay at home and have the opportunity of money-making, or, if in clerical work, of advancing their positions by the very fact that others around them have been called away? What are the women going to do in the way of work and help for those in the field and for those left at home who may need help and who will need sympathy?

The MANUFACTURERS RECORD has a telegram from one of its correspondents who has visited a number of Southern cities and who wires that he has been surprised at the comparatively small effort which he has seen in three or four Southern cities on the part of business men to lighten the burdens of the men called to the colors. In some of these cities he found a lack of quick appreciation and enthusiasm in arranging to take care of the needs of these enlisted men and of the little attentions which help to cheer them. We do not believe that this situation can by any possibility apply to the South generally. We believe that the people of this section will be as vigorous and as enthusiastic in upholding its best traditions of love for the flag, of love for those who are in the army, and of enthusiastic hospitality

which will be shown in little things and in little personal attentions, as well as in the larger things.

Under its heading "The Roll of Honor of Baltimore's Employers," the Sun has the following:

The following firms have announced that they will pay the salaries of guardsmen in their employ. The list will doubtless be largely increased as other corporations and firms announce their adoption of this policy:

	No. of Men
Gas and Electric Company.....	75
United Railways and Electric Company.....	60
National Stamping and Enameling Company.....	50
Poole Engineering and Machine Company.....	20
Baltimore Bargain House.....	8
Maryland Casualty Company.....	20
United States Fidelity and Guaranty Company.....	15
Fidelity and Deposit Company.....	25
New Amsterdam Casualty Company.....	5
Hotel Emerson.....	3
Standard Oil Company.....	8
N. Hess & Sons.....	1
Crown Cork and Seal Company.....	10
McShane Bell Foundry Company.....	3
Baugh Chemical Company.....	2
R. G. Dun & Co.....	2
Hutzler Bros. Company.....	3
Maryland Steel Company.....	
United States Asphalt Refining Company.....	
C. D. Kenny Company.....	12
Chesapeake and Potomac Telephone Company.....	
Tin Decorating Company.....	
American Street Lighting Company.....	
Consolidation Coal Company.....	
Emerson Drug Company.....	
Hochschild, Kohn & Co.....	
Dowell, Helm & Co.....	
Southern Electric Company.....	
Baltimore Gas Appliance and Manufacturing Co.....	
Maryland Rubber Company.....	
Banigan Rubber Company.....	
Isaac Hamburger & Sons.....	
Manufacturers Record.....	
Loose-Wiles Biscuit Company.....	
Baltimore Electric Supply Company.....	
B. F. Goodrich Company.....	
Hammond, Snyder & Co.....	
Boyle Can Company, Charles J. Brooks, president.....	
Rice & Hutchins Baltimore Company.....	
Dobler & Mudge.....	1
Security Life Insurance Company.....	1
Lilly, Dungan & Co.....	1
Carnegie Steel Company.....	
John C. Grafflin Co.....	1
Townsend Scott & Son.....	2
Cram Engineering Company.....	
Davison Chemical Company.....	

The Bartlett-Hayward Company, having 80 guardsmen in its employ, will look after the families of the men while away and re-employ them upon their return.

William C. Robinson & Sons Company notified its employes who go to the front that in case of death a full year's salary will be paid their families. Men will be re-employed upon their return.

The Gathmann Ammunition Company, Texas, Md., announced that the positions of 10 guardsmen would be held open for them.

John H. B. Latrobe Council, No. 810, National Fraternal Union, has passed a resolution holding in good standing all members who go to the front and paying their monthly premiums, keeping their insurance in force.

The Baltimore offices of the American Tobacco Company, the United Cigars Company, the American Piano Company (the Knabe factories here), the National Biscuit Company, the Goodyear Tire and Rubber Company, the P. Lorillard Company, the Hamburg-American Line, the Crane Company and the Armour Packing Company have been notified that all employes in the guard will be paid their full salaries while away.

INCREASING SHORTAGE OF LABOR.

THROUGHOUT the country, and especially in the East and the West, there is a shortage of labor which is already beginning to seriously tell in many lines of industry. The Philadelphia Ledger in commenting on the knit-goods trade made the following remarkable statements as to the scarcity of working people and the high prices prevailing for female labor:

Production is being seriously hampered by inability of many of the mills to get adequate help. One up-State underwear manufacturer is offering \$8 a week for girl learners when a year ago \$2 was good pay. Every girl having a perfect-attendance record for the month is rewarded with a bonus of \$2.50 in gold. Also an operator is paid \$1 for every girl she brings in, and if the learner stays a month the sponsor receives an additional premium of \$5. Even this "reward" system fails to bring sufficient workers to maintain production at top speed.

The First National Bank of Boston, in a review

of the New England field, lays stress upon the shortage in labor as affecting industries in that section and says:

Business in New England, as elsewhere throughout the country, continues at the maximum and is restricted only by the physical limit of productive capacity. Not only is the volume of transactions in nearly every line of activity of vast proportions, but profits are highly satisfactory. As of interest along this line is the splendid record of the Fall River cotton mills for the second quarter of 1916. Practically without exception the mills at that point are running full time, and in the case of cloth mills overtime is the rule. Increases in dividends are very noticeable, the average return for the quarter being 1.35 per cent., as against 0.87 per cent. a year ago. While the Southern textile mills are in a fortunate position as regards labor, it is probably understating the case to say that 10 per cent. of New England's textile spindles are idle on account of a shortage of labor. The acute labor situation applies as well to other leading New England industries and is significant in considering the improbability of further increases in production. General statistics almost without exception show great increases over the similar period of last year.

SOUTHERN RAILWAY EXTENDS ITS FARM WORK.

WITH characteristic enterprise and foresight, the Southern Railway Co. is remodeling its agricultural service to meet the requirements of changed conditions resulting from the extension of farm demonstration work by the United States Department of Agriculture.

Over three years ago it took the first steps in this direction by establishing market agencies at Washington, Cincinnati, St. Louis and Atlanta to discover markets for Southern products and for putting producers and buyers in touch with each other. Now a farm products agency will take the place of the market agency at Atlanta, with Roland Turner, now agricultural agent at Birmingham, in charge, while the agricultural field agents, numbering ten, will become farm products agents and will report to Mr. Turner. The change will take place July 1.

The market agents at the other cities named will gather and distribute information to farmers either through the farm products agency or direct, as may be necessary owing to circumstances, this data including all necessary facts relating to the requirements of different markets, while buyers will also be informed concerning the products offering for sale, this being gathered by the Atlanta agency and its ten traveling men and distributed to the market agents. Different markets need different varieties, grades, style of packing, etc., and the growers will be duly and fully advised so that their crops may be properly available when placed on the market.

When the railroad company discovered that the appointment of demonstration agents by the Agricultural Department in most of the counties of the various States traversed by its lines rendered unnecessary much of its agricultural demonstration work, it also found that there was a broad field for helping the agricultural movement, because some farmers were without experience in selling anything but cotton, and yet they had taken up diversified farming. Hence the establishment of the market agencies and the now further extension of this line of aid in the interest of the Southern farmers.

Notwithstanding this latest move, T. O. Plunkett will continue to be farm demonstration agent at Atlanta for emergency work all over the Southern Railway system, especially in places where advice may be required to assist farmers in fighting the boll weevil. Besides, the livestock and dairy development work of the road will be strengthened by the appointment of two former agricultural agents—W. M. Brown of Atlanta and T. G. Wood of Washington—to be livestock and dairy agents. J. G. Shand, hitherto agricultural field agent, will become assistant industrial and immigration agent at Mobile, and these three officers will also assist in locating farm settlers along the lines of the system.

President Fairfax Harrison of the Southern Railway is to be congratulated upon the success of its farm demonstration work in the past and also upon his decision to thus extend and enlarge its efforts by aiding agriculture, stock raising and dairy farming.

THE COTTON CROP OF 1915 AND PRECEDING YEARS.

THE cotton crop of 1914 was the largest the South has ever produced, and the cotton crop of 1915 was the smallest since 1909 and was only 45,000 bales in excess of the crop of 1902. Last year's crop was 4,800,000 bales smaller than that of 1914. It was 2,900,000 bales smaller than the crop of 1913 and 4,500,000 bales smaller than that of 1911.

This small yield of cotton, due in part to lessened acreage and in part to small yield per acre, would undoubtedly have resulted in very much higher prices than we have seen but for the war conditions, which have necessarily seriously curtailed cotton consumption in Europe. While a large amount of cotton has gone into the making of explosives, and while American mills largely increased their consumption, the mills of Central Europe have not been able, by reason of the blockade, to secure cotton, and, therefore, the small crop of last year, added to the surplus of the preceding year, has seemed sufficient to keep prices from advancing to the higher figures which would have prevailed in peace times had so small a crop been raised under peace conditions. Central Europe must necessarily be using up every bale of its stored-up or available cotton and still be seriously hampered to meet the actual needs. In the meantime everybody's clothes are wearing out, and the roughness of the soldiers' lives destroys their clothes with rapidity.

The world, therefore, is growing more and more bare of cotton goods and of raw cotton. Whenever the war ends, though we confess that we cannot at the moment see any sign of an early ending in sight, there must come a very active and insistent demand for cotton and cotton goods. Even, however, if Southern planters were assured of an early and high price demand for cotton, they would make a serious blunder if they concentrated their energy, as in years past, upon cotton production. It matters not how high prices may go, any agricultural business based on one crop is unwise and in the long run tends to limit prosperity.

The production of cotton over a term of years as compiled by the Census Department gives the following interesting summary:

Growth year.	Cotton (Exclusive of Linters).					Linters.				
	Running bales, counting round as half-bales.	Equivalent 500-pound bales.	Total.	Running Bales.			Running bales.	Equivalent 500-pound bales.	Total.	
				Square.	Round.	Sea Island.				
1915.....	11,068,173	11,191,830	11,124,031	10,929,471	111,716	91,844	895,274	880,780		
1914.....	15,905,840	16,134,930	15,934,649	15,795,377	57,618	81,654	832,401	856,900		
1913.....	13,982,811	14,156,486	14,082,732	13,855,267	39,962	77,563	631,153	638,881		
1912.....	13,488,539	13,703,421	13,529,303	13,375,598	81,528	73,777	602,324	609,594		
1911.....	15,553,073	15,692,701	15,603,850	15,383,003	101,554	119,293	556,276	557,575		
1910.....	11,568,334	11,608,616	11,624,777	11,421,522	112,887	90,368	397,628	397,672		
1909.....	10,072,731	10,004,949	10,148,076	9,902,595	150,690	94,791	313,478	310,433		
1908.....	13,086,005	13,241,799	13,207,157	12,870,994	242,305	83,858	346,126	345,507		
1907.....	11,057,822	11,107,179	11,157,086	10,871,652	198,549	86,985	268,060	268,282		
1906.....	12,983,201	13,273,809	13,117,310	12,791,541	268,219	57,550	322,064	321,689		
1905.....	10,495,105	10,575,017	10,635,023	10,242,648	279,536	112,539	230,497	229,539		
1904.....	13,451,337	13,438,012	13,590,412	13,198,944	296,151	104,317	245,973	241,942		
1903.....	9,819,969	9,851,129	10,305,073	9,359,472	730,206	75,383	185,752	194,486		
1902.....	10,588,250	10,630,945	11,078,882	9,992,665	981,264	104,953	196,222	196,223		
1901.....	9,582,520	9,508,745	9,954,945	9,132,215	744,551	77,879	166,026	166,026		
1900.....	10,102,102	10,123,027	10,486,148	9,629,762	768,092	88,294	143,500	143,500		
1899.....	9,393,242	9,345,391	9,645,974	9,043,231	505,464	97,279	114,544	114,544		

It is interesting to note that, notwithstanding the much reduced crop, the number of round bales put up was larger than in any year since 1910. When the round-bale system was first introduced it was aggressively pushed and a large business was developed, reaching in 1902 to nearly 1,000,000 bales, but with the failure of the parent company the business rapidly declined, and in 1914 only 57,000 bales were put up. With the change in the ownership of this system there are signs of a revival of interest in the round bale, as indicated in last year's output, which was nearly double that of 1914.

HOW GERMANY BUILT UP ITS FOREIGN TRADE.

THE MANUFACTURERS RECORD has often referred to the bounty system prevailing in Germany for many years, by which the Government co-operates in the extension of Germany's foreign trade. The foreign correspondent of the Iron Trade Review, in giving an account of this system, says:

The syndicate controlling fuel, ore, pig-iron and raw steel have supplied their associated customers—the steel rollers, manufacturers and engineers—with materials on the rebate principle when such materials have been worked up into manufactures for export. Thus, there would be a

standard price for, say, steel ingots; but if a firm used a thousand tons of ingots to make plates for export a rebate would be granted on that quantity. The rebates have sometimes been as high as 40 cents per ton of coal, \$2.00 per ton of pig-iron and \$3.75 per ton of steel ingots, and so on. As a result, steel rails, for instance, have been sold abroad \$7 below the ordinary market price as quoted in Germany. The rebates, or bounty rates as they are called, have been increased, decreased or suspended in response to the fall or rise in the home demand. If home demand has been good, the rates have been low; if home demand has slackened, the bounties have been put up in order to promote "dumping" abroad rather than have plants idle at home. When general trade has been the slackest, German exports have increased the most.

It has been well known in this country for many years that the German Government encouraged its manufacturers in every way possible to keep their plants running to full capacity, and whenever the home market would not take their output to ship the surplus to foreign markets, or to "dump" it, as the saying is, regardless of price. In this country it has been held by many to be an unspeakable crime for American manufacturers to sell any of their products abroad at a lower price than in this country, but Germany encouraged this system while we discouraged it. It has been the policy of the German Government to take the ground with manufacturers that it was better for the country for all factories to be run to full capacity and the surplus to be sold abroad without regard to price at home than for the factories to have to run at part capacity. This has been a well-known policy on the part of the Government, and in addition to that it has been the custom to pay a bonus on many products shipped abroad, provided the makers were members of some of the German syndicates which controlled the handling of so many of Germany's industrial interests.

Thus Germany pays a bounty to encourage exports of its manufactured products, and at the same time encourages the manufacturers to sell abroad at any price they can get when their own market will not absorb their full production. This plan of the German Government, which has been systematically worked for many years, has resulted in enormous expansion of German industries and of German foreign trade. Connected with this work is the German view that if by selling abroad at very low prices they can break down competition in other

countries, they will thus be able to prevent the development of new industries elsewhere and retain these foreign markets for themselves.

It would, for instance, be a very profitable operation for German dye manufacturers, who represent about \$400,000,000 in that industry, to sell in this country far below the cost of manufacture for a time in order to discourage the building of factories here. Or, if that did not work, they could build a few factories in this country, run them to the limit for a time, selling the product without regard to cost and preventing the development of legitimate industries in the United States. When they had crushed out competitors in this country by their low prices, they could divide the losses among all the German plants which are in the syndicate, and then put prices up in this country as high as possible. In a fight of this kind they have been able in the past to discourage American competitors from the legitimate development of the dye industry, and so long as these great combinations in Germany divide their profits or their losses and work in this spirit, backed as they are by the power of the German Government, they are able under ordinary conditions to crush out new competitors in this and other countries.

Germany's industrial policy is in direct harmony with its military policy.

GET READY NOW: ESTABLISH HOME GUARDS!

THE entire country has been drained of its militia, originally created for the purpose of safeguarding the communities in which these various military units were organized, and not for the purpose of warfare far away from home, although subject to the Government's call when needed. These volunteer military organizations have been the safeguard of the country in time of riots and in protecting their communities from danger in times of threatened anarchy. They have been suddenly called in their entirety to the front and are to be sent thousands of miles away from home.

This situation requires the immediate organization of what might be called "Home Guards," recruited for the express purpose of doing at home what the State militia was originally organized for, that is, the protection of the communities in which these men live. Every town which has had any State militia, and, indeed, towns where none has existed, should now organize companies of volunteers who would step into the breach, and on two or three evenings of every week go through military training. These "Home Guards" need not necessarily consist only of the physically able-bodied men who would be available for war. Men beyond the war age and men equal to taking part in protecting homes in an emergency would be available. Since we have failed in creating that preparedness which the world situation has demanded of us, and we are now up against this serious condition, it is incumbent that the entire country, to as large an extent as possible, should go into immediate voluntary training and learn something of the duties which would be required of State militia in times of emergency, where strikes or riots or threatened anarchy might prevail. We know not what may be before us, what fearful conditions we may have to face, and, therefore, it is incumbent upon our people to secure as much military training, and that immediately, as is possible.

The men who join these voluntary "Home Guard" companies should not have to bind themselves in any way to engage in war, but to be available in their own community or State for militia duty in any emergency. It is most important that this should be done. Out of this military training, even limited as it would be, there would come a certain amount of experience which able-bodied men, willing to enlist for war, would secure should the country have to call for more volunteers for the front.

The students in every college in the country who have had military training might be made available for the training of these "Home Guards" until other men could be provided.

It is a serious situation for the entire country to have been swept of its whole militia system without any provision whatever for the work of the militia. Quick action is important, and every town and city and every country community should begin the organization of these "Home Guard" companies.

INDUSTRIAL CENSUS OF KENTUCKY, TENNESSEE AND VIRGINIA.

AMONG recent preliminary manufacturing census reports issued by the Census Bureau are included a summary of industrial statistics comparing the figures for 1909 and 1914 for the States of Kentucky, Tennessee and Virginia.

Kentucky: The summary shows an increase in the census of 1914 as compared with that for 1909, with the exception of number of establishments, proprietors and firm members, and wage-earners, which show decreases. The decreases are due primarily to the fact that at the census of 1909 a large number of reports were received from small lumber mills which should not be included in the census. The decreases under the conditions are no indications of a decrease in the manufacturing activities of the State. The capital invested, as reported in 1914, was \$193,423,000, a gain of \$29,644,000, or 11.9 per cent., over \$172,779,000 in 1909, while the value of the manufactured products was \$230,249,000 in 1914 and \$223,754,000 in 1909, the increase being \$6,495,000, or 2.9 per cent.

Tennessee: Consistent increases are shown in the summary of 1914 as compared with 1909, with the

exception that proprietors and firm members showed a decrease of 5 per cent. In the order of their importance, from a percentage standpoint, the increases for the several items rank as follows: Salaries, 28.8 per cent.; capital, 25.9 per cent.; services, 20 per cent.; materials, 18.7 per cent.; primary horse-power, 18.4 per cent.; value of products, 17.7 per cent.; wages, 17.1 per cent., and value added by manufacture, 16.3 per cent. In 1914 the amount of capital invested in manufacturing enterprises was \$211,423,000, a gain of \$43,500,000, or 25.9 per cent., over \$167,923,000 in 1909. The value of products was \$212,071,000 in 1914 and \$180,216,000 in 1909, the increase being \$31,855,000, or 17.7 per cent.

Virginia: Compared with 1909, a considerable increase is shown by the 1914 census, with the exception of a decline of 3 per cent. in the number of establishments, 2.2 per cent. loss in persons engaged in manufactures, 6.8 per cent. decrease in proprietors and firm members, and 2.7 per cent. decrease in the average number of wage-earners employed during the year. The decreases are due primarily to the fact that at the census of 1909 a large number of reports were secured from small lumber mills for which no reports were received in 1914. The decrease in the number of establishments, therefore, is no indication of a decrease in the manufacturing activities of the State. Virginia has a capital investment in manufactures in 1914 of \$261,501,000, a gain of \$45,109,000, or 20.8 per cent., compared with \$216,392,000 invested in 1909. During this period the value of its products increased \$44,245,000, or 20.1 per cent., the amounts for 1914 and 1909 being \$264,039,000 and \$219,794,000, respectively.

PACKING PLANTS IN THE SOUTH.

THE good effect of the Moultrie Packing Co. of Moultrie, Ga., in creating a market for hogs, and thus developing that industry in that section, has often been referred to by the MANUFACTURERS RECORD. In giving some additional information on the work of this plant, Mr. W. C. Vereen, the president, in a letter to the MANUFACTURERS RECORD, says:

Since the establishment of our plant in Moultrie the farmers of Southern Georgia, Eastern Alabama and Northern Florida have commenced devoting considerable more attention to the raising of hogs than heretofore. As an illustration, up to this time last year, which was the first year our plant was in operation, we had killed about 16,000 hogs. This year we have killed about 60,000. The probability is that next year during the same period we will kill over 100,000.

I am also president of one of the banks of our city, and for many years during the early part of May the banks always have numerous demands from the farmers of this section for money to pay cotton choppers. This year this demand has amounted to almost nothing. Instead of going to the banks and borrowing money to pay their cotton choppers the farmers have sold a few hogs and secured the necessary cash to meet this expense. The cotton crop in this section will be made this year on less borrowed money than any previous season.

So far we have not made satisfactory headway in the cattle business. We cannot hope to do much in this line as long as we have the tick to contend with. Whenever we have gotten rid of the tick better cattle will be raised. Consequently there will be promise of a profit in handling cattle.

There is danger that too many packing plants will be established in the South before the supply of hogs is adequate to supply the demand. If too many plants should be erected, there would be danger of failure, and the failure of one or more Southern packing plants might hold back the development of the livestock industry for many years. The safer plan would be to go slow, allow one or two plants to become firmly established and then erect more. It is necessary that our farmers raise hogs to be put on the market at all seasons of the year. We find now that they wish to market their hogs just as they have been marketing the cotton crop—in a few months of each year. As a rule, hogs bring higher prices in the summer months than they do in the fall and winter months. The wise farmer will take advantage of this and market his hogs when they will bring the highest price. If I can give you any further information, I shall be pleased to do so.

The points made by Mr. Vereen should be carefully studied by the farmers of the South, as well as by business men. The effect of this plant in largely increasing the raising of hogs is strikingly indicated in the figures given by him, but, as Mr. Vereen says, not until the tick evil is eradicated will there be an adequate development of the cattle industry.

In the meantime the establishment of packing plants should be safeguarded in every way so that there may be no unwisely located plants without adequate capital to carry them through until the supply of hogs is sufficient to put the business on a profitable basis. However desirable it would be to have packing plants at various points in the South, it would be unwise for them to be established without ample capital. This is a mistake made in the early days of the cotton-mill industry in the South. It should be avoided in the packing industry, which seems destined to claim a large amount of interest throughout the South.

Kingan & Co., Ltd., pork and beef packers of Richmond, Va., who are now largely increasing their plant in order to pack during the summer as well as during the winter, in a letter to the MANUFACTURERS RECORD, say:

Last winter we packed in four months about 55,000 hogs, and about that number for several years past, the number varying according to the supply.

We received a number of hogs from North and South Carolina last year and previous years, and have been actively co-operating with the Department of Agriculture in those States in connection with their efforts to develop the hog industry. Packers cannot satisfactorily use soft hogs that have been fed only on peanuts and other such feed that makes the flesh soft and oily. This trouble can be remedied by proper feeding, and there is and will be a market in Richmond for all hogs of satisfactory quality that are likely to be raised in Virginia and the Carolinas for some time.

Plants like ours, operating under United States Government inspection, cannot buy hogs that are dressed on the farm, and these hogs have to be marketed in nearby towns, where the seller has only the local merchants for purchasers. We can only buy live hogs, and it is better to have them shipped in car lots.

Rich in Soil, With Surplus Labor Needing Employment, a Louisiana Town Invites Suggestions About Manufactures.

C. J. EDWARDS, Editor The Abbeville Meridional, Abbeville, La.

For a long time I have been contemplating the great need of factories in the South to build up its wealth and round out its development. Had been considering in this connection the advisability of inaugurating an active campaign for securing some manufacturing industry for this town. Your article "An Atmosphere for Manufactures Must Be Created in the South," in the MANUFACTURERS RECORD of June 15, was both a revelation and an inspiration for me. Hence I am approaching you for guidance.

Abbeville is a town of 3500 people, surrounded by a flourishing agricultural community whose fertile soil yields in prodigal abundance the four great staple crops, corn, cotton, rice and sugar-cane. It is no unusual sight to see the four crops growing in the same field. But with the exception of rice these products are marketed as raw material and sent elsewhere to be finished for the consumer. There is here at hand a large, idle, unproductive population sufficient to supply a factory of some kind. What should it be? Ah, there is the rub. For I frankly confess my lack of knowledge and experience ill befitted me for attempting to decide. A yarn mill had suggested itself to me as being cheaper and possibly as profitably in the long run. Some 20 years ago the neighboring town of New Iberia tried a hosiery mill, but much to my regret it proved a failure, and the sad memory of that haunts us still. Our scant capital—if you consider the local people—exact that it be a modest beginning, but it does seem that there should be some avenue of effort open to us.

Could you not suggest something within our reach or lead some capitalist to us?

Mobile Welcomes Visitors.

A Tourist Welcome Club has been organized at Mobile, the expenses of which are maintained by public-spirited citizens. Headquarters are in a comfortable room adjoining one of the leading hotels of Mobile. The visitor's name and address and business connections are asked for future reference, and attendants give any information regarding Mobile that may be requested.

The Proposed Government Armor Plant

THE MISTAKEN POLICY OF THE BETHLEHEM STEEL COMPANY AND WHY THE GOVERNMENT SHOULD NOT ACCEPT ITS OFFER.

Starting some months ago with a threat to the Government that if the latter undertook to build an armor-plate plant the Bethlehem Steel Company, with a view to its amortization of the investment in its armor plant, would increase the price of its armor plate to the country—a threat which good judgment on the part of the officials of the Bethlehem Company should never have permitted them to make—that company has steadily shifted its position from one proposition to another until it has now reached the point where it offers to sell armor plate at exact cost to the Government.

The fight of the MANUFACTURERS RECORD has certainly driven that company from its position of dictation to the Government, with which it began this campaign, to the position in which it has expressed its recognition of some of its mistakes in dealing with the public, and to the point where it has made various propositions, each one of them more favorable to the Government than the preceding one.

The last proposition is to sell armor plate to the Government at cost.

The first proposition was to add largely to the cost of armor plate if the Government built its own plant.

The MANUFACTURERS RECORD has in this fight, we believe, at least saved the Government many millions of dollars; but that is not the thing for which we are fighting. We have been antagonizing the Bethlehem propositions on a far broader basis than that of the saving in the cost of armor plate, and with the best of personal feeling for its officers, but with a duty to the public above personal feelings or friendships.

The MANUFACTURERS RECORD antagonized the threat of the Bethlehem Company and said that self-respect demanded that the Government should place itself in a position which would make impossible any similar threat in the future. The MANUFACTURERS RECORD, however, took the broader ground that, entirely outside of this threat, it was unwise to the danger point for all the armor plate of the country to be made in one limited area, all of it being centered in Pennsylvania and dependent upon sources of ore supply which could be instantly cut off in time of war.

As it is almost criminal folly for the Government to permit all the munition-making plants of the country to continue longer to be located immediately along the Atlantic coast, subject to capture by an invading enemy, so it is folly for it to permit all of its armor-plate making business to be in the same area and subject to the same dangers. This is the broad national viewpoint, as some munition plants should be established in the Central South or in the Central West, far away from the Lake region or from dependence upon Lake ores.

This is not in any sense from a sectional point of view. If there are in the Central West as far out as Colorado better locations than the South, then the MANUFACTURERS RECORD emphatically advises that the best location should be selected. Some petty suggestions by narrow-minded people not familiar with the broad question have been raised to the effect that the Government could not profitably establish a plant in the South or West, and that the ores of that section were not suitable for armor and that the Lake ores are not used in armor-plate making. These criticisms, which will be answered in full next week, are too petty to be given serious consideration.

The MANUFACTURERS RECORD is as much opposed to the Government accepting the charity of the Bethlehem Company and getting its armor plate at cost as it was to the Government yielding to the threat of that company when it announced that it would advance the price of armor plate if the Government dared to build a plant of its own. The Bethlehem Company appears in the foreground in this matter. We do not know whether other armor-plate companies are co-operating with it or not, but we believe they are not. If they are, we would extend to them exactly the same criticism we are giving to the open announcements of the Bethlehem Company.

Upon the announcement, in its desperate effort to prevent the building by the National Government of an armor-plate plant, that the Bethlehem Company

had offered to sell armor plate to the Government at cost, the editor of the MANUFACTURERS RECORD wrote to Charles M. Schwab and to President Grace of the Bethlehem Company and wired to Senator Tillman as follows:

Mr. Charles M. Schwab,

Chairman Bethlehem Steel Co.,

South Bethlehem, Pa.:

Baltimore, Md., June 21, 1916.

My Dear Mr. Schwab—This country has not reached a point where from an economic standpoint or from good business morals it is proper for it to make a dicker to change its avowed policy in order to buy any material at the cost of production. This, I think, you will readily recognize.

I am constrained, therefore, to feel that the Bethlehem offer to sell armor-plate to the Government at cost in order to prevent the Government from building a plant of its own is from every point of view a mistaken one. It is, I think, as unfortunate as was the threat of the Bethlehem Company to advance its price of armor-plate if the Government should decide to build a plant when this government-owned plant was first proposed last fall.

I wish you and your associates would consider this situation from the broad viewpoint of the extreme danger to the country, in the event of war, so long as our munition-making business, our armor-plate plants and 95 per cent. of our steel are wholly dependent upon an ore supply that could be instantaneously shut-off.

If you for a moment say that there is no danger of the capture or the blocking of our ore supply, then you immediately say that there is no danger of war, and, therefore, no necessity for building up a navy and creating an army, and no reason, therefore, for making armor-plate.

You know the industry too well not to recognize the dangers of the present situation. You know that in the event of war the entire limited supply of foreign ores could instantaneously be cut off. You know that the 50,000,000 tons or more of Lake Superior ores, which come through the Soo Canal, could be shut off with equal facility and without a moment's warning. And yet all of your plants and all other plants in the country producing munitions of war, and the steel plants that produce 95 per cent. of the steel of the country, are subject to this danger.

The danger is exactly as real as the danger of war. If there is no danger of war with any outside power, then there is no danger of this upsetting of all the steel industry of the country. In that case, however, as just stated, there would be no necessity whatever for building a navy or constructing fortifications and equipping them with great guns.

Upon the iron and steel men, who have been enriched by the vast opportunities of this country and of the facilities which this country has afforded to them, rests a very serious responsibility. They can, to their own advantage and at the same time to the nation's welfare, develop these industries in other sections. They can create enterprises away from the coast and not dependent upon Lake Superior or foreign ores for the production of war supplies, and so long as they fail to do so may I not suggest that they are failing as patriots to recognize their responsibilities to the nation, though they are asking the nation to develop an army and a navy to protect all interests, their's included?

Will you not give serious thought to this consideration?

Some great iron and steel man must take the lead, and whoever does so will do a patriotic work for the country which will forever redound to his credit. I shall be glad to see you and your associates lead in the matter.

Upon the announcement of the offer of the Bethlehem Company to sell armor-plate to the Government at cost, I felt that your proposition was so unsound from the economic standpoint of the Government's welfare, and from good business judgment, that I wired to Senator Tillman as per the enclosed copy. It directly antagonizes the position of the Bethlehem Company, and I trust that it may be helpful in defeating your plan; for, however much may be my esteem personally for you and your associates, I am constrained to say that it seems to me you are making a very serious mistake in this campaign in which you have so vigorously assailed the building of an armor-plate plant by the Government, and in doing this have created a widespread hostility to your interests and to the interests of other great industrial corporations.

Very truly yours,

RICHARD H. EDMONDS,

Editor.

TELEGRAM TO SENATOR TILLMAN.

Baltimore, Md., June 21, 1916.

Hon. Benjamin R. Tillman,

United States Senate, Washington, D. C.:

The offer of Bethlehem Steel Co. to sell armor-plate at cost does not in the slightest change the situation that to permit all armor-plate and munition-making business to continue concentrated in a limited territory dependent wholly on Lake Superior ores, or on foreign ore, both of which could be cut off without a moment's warning in time of war, would be criminal folly on the part of our Government. If the Bethlehem Company and other armor-plate makers would offer to supply armor without cost to the Government this nation would still be recreant to its responsibilities if it permitted existing conditions in iron and steel, munition and armor-making to last any longer. It should be emphasized over and over again that about 95 per cent. of the steel production of the United States comes out of ores from the Lake Superior region,

which pass through a short canal which could at any moment be blocked by the explosion of a few sticks of dynamite. In such an event, the entire iron and steel industry and all interests dependent upon them throughout the country would instantaneously collapse, for the South and Southwest produce only about 5 per cent. of the steel made in the United States. This condition should never have been permitted to exist prior to the war, but now that the world's attention has been called to this amazing situation and its danger brought to national attention by Europe's struggle, it will be unspeakable folly to permit it to continue longer. If the Bethlehem or other armor-plate makers want to show their patriotism it should be done by building armor-plate and munition plants far away from the coast and not dependent upon Lake Superior ores, or else in a spirit of broad national patriotism sink their own individual interests and encourage the Government to build such plants where they would be safe in time of war. Any other policy on the part of armor-plate or munition-making interests would indicate a lack of broad patriotism, which, for their honor and the honor of the country, it is to be hoped will never have to be charged against the great industrial leaders of the country.

RICHARD H. EDMONDS,

Editor Manufacturers Record.

TELEGRAM FROM SENATOR TILLMAN.

Manufacturers Record, Baltimore, Md.:

Washington, D. C., June 21.—In reply to your wire just received, the power to locate the armor plant authorized by the Senate and agreed to in the House Naval Appropriation bill is placed in the Secretary of the Navy, subject to the approval of the general board. The naval committee has no power to change this responsibility. But I will call the attention of the Secretary to the strong argument presented in your telegram. I shall urge on him the wisdom of the facts you present, and no doubt he will give them serious consideration. Of course, you know already that materials for making armor-plate are found in Alabama, Virginia, and in Pennsylvania, to say nothing about other places. If the Lake Superior ores were not obtainable we still would not lack for material to make armor. But the structural steel and other steel needed by commerce and the business interests of the country would be very difficult to obtain, of course.

B. R. TILLMAN.

SECOND TELEGRAM TO SENATOR TILLMAN.

Baltimore, Md., June 22, 1916.

Hon. Benjamin R. Tillman,

United States Senate,

Washington, D. C.:

Acknowledging yours of June 21, just received. You apparently have overlooked the fact that the entire steel industry of Pennsylvania is dependent on Lake Superior ores excepting to the extent of a very small supply of foreign ores. Pennsylvania makes one-half of the steel produced in the United States, but all of this is made out of ores brought from Lake Superior district and a limited amount of foreign ores, the entire production of iron ores in Pennsylvania being too small to be given any consideration and amounting to only about 1 per cent. of the total amount of ores used in the State. My contention has been to try to save the Government from making the fatal blunder of continuing armor-plate making in Pennsylvania, where all of it is now centered, since that State and its steel interests are just as dependent upon Lake Superior ores as are Western steel-making districts. There are great iron-ore supplies in Alabama and Virginia, as you suggest, as well as in other Southern States, but it will take time to adequately develop them in order to save the Government from its present dependence upon Lake Superior ores, and this development should be begun on a large scale at once. Permit me to suggest that you are mistaken in supposing that "if the Lake Superior ores were not obtainable" the Government still "would not lack for material to make armor." The Government would be just as helpless and unable to secure the materials for armor-plate as would be the commercial interests of the country in their inability to secure "structural steel and other steel needed by commerce." When once the Lake Superior district supply has been shut off, Pennsylvania's iron and steel interests would collapse as completely as would iron and steel interests of the Lake Superior region, for all alike depend upon Lake Superior ores. The only possible salvation of the situation, and it will be a fearful mistake for the Government not to recognize this, is to build armor-plate and munition plants in the Central South or Southwest, so that all of these interests may not be dependent wholly upon one ore supply as they are at present. Please do not overlook the fact that under existing conditions the Government could no more secure the materials for armor-plate making if the Lake Superior district were shut off than could the business interests of the country secure the material for structural iron and steel, and this likewise applies to guns, large and small, and to munitions of war. To fail to take account of this situation would be a mistake of incalculable possibilities of evil.

RICHARD H. EDMONDS,

Editor Manufacturers Record.

President Grace of the Bethlehem Company published a letter which he had written Senator Tillman offering to sell armor plate at cost, and, called forth by that, the following letter was sent to Mr. Grace:

Baltimore, Md., June 23, 1916.

Mr. E. G. Grace,

President Bethlehem Steel Co.,

South Bethlehem, Pa.:

Dear Sir—In the first paragraph on the last page of the printed copy of your letter of June 19 to Senator Tillman, you say:

"This question should not be determined with reference to the interests of the

Bethlehem Steel Co., but with supreme regard to adequate national defense and sound public policy."

I enclose a copy of our Daily Bulletin, containing copies of a letter to Mr. Schwab and telegrams to and from Senator Tillman in regard to the proposition made by your company to provide the armor-plate to the Government at cost. I have, at various times, invited the attention of the Bethlehem Company to the danger of having all of our armor-plate and munition plants located in a limited area in the East and dependent upon sources of ore supply which could be immediately cut off in time of war. I invite your attention to the statements made in the letter to Mr. Schwab and the telegrams to Senator Tillman.

In connection with the statement in your letter to Senator Tillman, to the effect that this question should be decided

"WITH SUPREME REGARD FOR ADEQUATE NATIONAL DEFENSE AND SOUND PUBLIC POLICY."

it is with supreme regard for adequate national defense that I have pressed upon the country's attention the necessity of developing armor-making and iron and steel production in other sections than those now dependent upon foreign and Lake Superior ores. I have discussed this subject wholly from the standpoint of adequate national defense. No one could be more fully aware of the danger of the present situation, with 95 per cent. of our steel dependent upon ores, the supply of which could be shut off at any moment in time of war, than you and your associates, and I am glad that in your letter to Senator Tillman you have taken the ground that this question should be determined, not with reference to the interests of your company, but with supreme regard for adequate national defense and sound public policy.

I have repeatedly asked if, in view of the danger of the present situation, your company or other armor-plate companies would, individually or unitedly, agree to build in some other part of the country an armor-plate plant in order to give to the Government an assurance which it cannot possibly have under existing conditions, if the Government did not build an armor plant. To this question I have not been able to secure any reply. I am sure that your company individually or your company in connection with other armor-plate makers could well afford, in the interest of the nation's welfare, which means the protection of every dollar invested in all of the iron and steel interests dependent upon Lake Superior ores, to build an armor plant far away from existing plants and not dependent upon the same source of ores, if it was done even with the distinct understanding that it would not be put into operation except in a case of emergency. Nevertheless, I am sure that a plant of this kind, in connection with other iron and steel interests, could be made profitable, but if it did not make a dollar of profit, or if it did not go into operation, but should be built merely as a means of safety in time of need, it would be a wise investment on the part of the steel interests of the country.

The Government is proposing to spend hundreds of millions of dollars to enlarge its navy merely to provide against contingencies. Manufacturing plants often have duplicate power facilities, so that in the event of accident to one the other can be immediately utilized, and this is considered a wise investment. Hydro-electric plants sometimes spend large sums to build auxiliary steam plants to be used in case of emergency should any disaster happen to their water-power plant. Would not the steel interests of the country, who have billions of dollars staked on getting a regular, unbroken supply of Lake Superior ores, be justified in following so wise an example? The iron and steel interests, the munition industries, the armor-plate makers, with all the billions invested in their plants and in interests dependent upon iron and steel have not a single dollar invested as insurance against this danger by owning plants in other sections dependent upon other sources of ore, except the Steel Corporation, which has one plant in Alabama.

Permit me to quote an extract from a letter written yesterday to Secretary Daniels:

"With all of the armor plants now existing wholly dependent upon Lake Superior ores, with all of the munition factories in the country dependent upon the steel produced from Lake Superior ores, with every shipbuilding industry in the country, even including those on the Pacific Coast and those at Norfolk and at Newport News, dependent upon steel from Lake Superior ores, with every locomotive plant in the country wholly dependent upon Lake Superior ores, and every steel rail mill in the country, with the exception of one in Birmingham and one in Colorado, dependent upon Lake Superior ores, you can readily appreciate that the situation is one to alarm to a serious degree every thoughtful man."

In view of these facts, and of that broad statement in your letter to Senator Tillman, to the effect that this question should be decided with supreme regard for adequate national defense, may I not ask if it is possible to provide adequate national defense so long as you cannot guarantee your supply of foreign ores or of Lake Superior ores to be available in time of war, and I need not remind those so well informed on this subject as you and your associates of the possibility of a complete cutting off of these sources of ore, which is certainly equally as great as was the possibility of Europe's awful struggle two years ago.

Very truly yours,

(Signed) RICHARD H. EDMONDS,

Editor.

The MANUFACTURERS RECORD has received from Mr. W. S. Pilling of Pilling & Crane, Philadelphia, dealers in iron, steel and ores, a letter taking exception to some of these statements in regard to armor-plate making and the availability of the South for this industry. Mr. Pilling's letter and a reply which we think will entirely satisfy him that it would have been much wiser if he had never written it will appear in the MANUFACTURERS RECORD next week. If anybody else wants to take issue with the statements made by the MANUFACTURERS RECORD on these points, he is invited to come on.

Labor Conditions and Contract Work Throughout South

MANY CONTRACTORS CLAIM NEGROES AS BEST LABORERS IN WORLD FOR ROUGH CONSTRUCTION WORK AND MANY BECOMING GOOD MECHANICS

That contract work all over the South, out to Texas and Oklahoma, is much more active than for several years; that there is a tendency to a higher rate of wages, and here and there an indication of a scarcity of labor, are some of the facts brought out in letters from contractors throughout the South.

These letters bring out very clearly many facts in regard to the comparison between negro and foreign, and between negro and white labor generally.

For the rougher contract work of general contractors there is a very general preference expressed for negroes over white labor, provided the negroes are under the control of Southern bosses who are accustomed to handling negro labor.

The character of white labor employed in this general contract work in the South is said not to be as satisfactory as the negro labor, but in building operations a preference is expressed for white labor over negro labor.

A number of these contractors express the idea that in its supply of negro labor for rough or heavy contract work this section has a great asset, as compared with that of labor to be found anywhere else in the country, and especially in comparison with foreign labor.

Some people who have looked upon the negro as a liability rather than as an asset to the South will doubtless be greatly surprised at this view, expressed in so many letters from large employers of rough labor.

A wise suggestion is made by one firm that industrial schools for white boys should be established throughout the South in order to give them the opportunity of thoroughly learning trades unhampered by conditions which now exist in some places.

So great is the demand for labor, skilled and unskilled, throughout the North Atlantic and Middle States and in the Lake region that efforts are being made in many cases to draw labor from the South. One New England concern having a branch in North Carolina has been sending a large number of negroes to its New England plant to help to meet the demand. Many other letters call attention to this tendency to seek to fill up the vacuum in other sections by drawing labor from the South.

It is to be hoped that the development of the South will be sufficiently rapid to enable all of its own people to find employment at home, and that instead of the rough labor of this section going North and West because of the demand there will be such a demand in the South as to equalize the situation and indeed draw laboring people from other sections.

These letters indicate a widespread construction activity in the South. They show that the movement already under way, though not as active as it was prior to the panic of 1907, is still so much broader than at any time since that year that the laboring people of the South are likely to be employed more fully than they have been in profitable work for some years. Contract work on streets and road building is especially active, and this will doubtless increase during the coming months.

Scarcity of Labor—Plenty of Work.

WALTER S. ELY, President Ely Construction Co., Chattanooga, Tenn.

We have been working in the South for the past six years, and this is the first season that labor has been at all scarce for paving work.

At the present time we have two contracts under way, one at Sumter, S. C., and one at Greenville, Tenn. At Sumter we have been short from 10 to 20 men for two months past, while at Greenville one Monday morning we found that our force had dropped to only 16 men instead of 60 or 70.

We are depending almost wholly on negro labor, and find them very efficient for our purpose, providing they are handled by foremen who have been brought up in the South and understand negroes.

Expert labor is so scarce in the South at the present

time that the writer has had occasion recently to send North for same.

There is plenty of paying work in sight at the present time, and, in fact, more than there has been at any time for the past six years.

Building Contractors Busy—Using White Labor.

WORSHAM BROS., Building Contractors, Knoxville, Tennessee.

We are having little trouble in getting ordinary laborers, but there is a great demand for skilled labor, and it is hard to get.

Our work is building construction. We are very busy, and as compared with previous years the outlook is much better than ever before.

We depend on white labor, as negro labor is very poor, and we take the white in preference.

Miami Enjoying Largest Building Boom Ever Experienced.

C. H. STEARNS, Secretary-Treasurer Freedlund Construction & Supply Co., Miami, Fla.

Miami is enjoying at the present the largest building boom it has ever experienced, and all high-class labor is kept busy. We believe the supply is about equal to the demand.

•Our business is that of road building, etc., and we use common labor almost entirely. We depend entirely on negro labor, except our foremen, cement finishers, form setters, rollers, etc.

The outlook for the summer and fall is excellent in all respects.

Paving and Road Building Work Active.

LESTER LEVY, President Southern Paving Co., Dallas, Tex.

There is a great deal of paving, road and building work going on in this section, and the outlook for summer and fall is very promising.

The supply of labor at the present time is ample, but in a short time they will go to the cotton fields to pick cotton.

We depend mostly upon negroes and Mexicans for our labor, and find negroes better suited for our work.

Outlook for a Banner Year—Ample Labor Supply.

JOHN BOLAND, President John V. Boland Construction Co., St. Louis, Mo.

We have been successful in procuring all the labor required for the contracts which we have on hand. We have a number of large chimneys under way in different parts of the country, and from the present outlook this year is going to be a banner year. There has been a slight increase in wages to common laborers.

Much Construction Work, Labor Scarce and Wages Higher—Southern Negroes Sent by Carloads to North.

J. P. PROPST, Contractor and Builder, Charlotte, N. C.

We find labor becoming more scarce and more difficult to get as each week approaches, due in part to the increasing demand in the North and New England States and the increasing raise in wages at these points. This applies more especially to the colored labor. The increase in business in the South over last year also makes the white labor more scarce and wages higher.

We are being forced to pay at this time on an average of 25 to 30 per cent. more for labor than we did this time last year, and at that it is scarce and difficult to get. On several large contracts, such as power plants, etc., higher wages are being paid than have been paid heretofore, and this takes a lot of laborers out of this section. Only recently the Atlantic Waste Co. of this city has sent several carloads of colored laborers to Providence, R. I., to work in their plants there, and are preparing to send more.

Business in this part of the country is much better than at this time last year, and almost everybody and all laborers who will and want to work can find employment.

Labor Scarce at Wheeling.

C. B. KIMBERLY, JR., the C. B. Kimberly Company, Wheeling, W. Va.

Labor is very scarce in Wheeling, and is commanding an average wage of \$2.50 for nine hours' work, owing to the fact that all steel mills in this vicinity are running full and practically all other industries are enjoying the same conditions. In Northern Ohio labor is not plentiful. It can be secured at an average wage of 25 cents per hour. At Point Pleasant, W. Va., labor is plentiful at a wage of 18 cents per hour. At Morgantown, W. Va., labor is not plentiful, but can be secured at an average wage of 22½ cents per hour.

Ample Labor for Work in Sight.

J. L. CROUSE, Contractor and Builder, Greensboro, North Carolina.

In regard to labor in this part of the country, it is about normal. I have a job up near Fairmount, W. Va., and labor up in that part of the country seems to be scarce. I think in the South there will be ample labor for the work that is in sight.

More Construction Work Than for Several Years—Higher Wages and Growing Scarcity of Labor.

C. D. SMITH, President Memphis Stone & Gravel Co., Memphis, Tenn.

Regarding contracts, there is contemplated and invitations for bids out for more railroad work and improvements to railroads than there has been in this section of the country within the last four years. There is a large amount of levee work along the Mississippi River being let.

Farm activity is as great, if not more so, this year than has been for the last two or three years, and where there is not a real shortage of labor for work now going on, it is a fact that labor is scarce in certain sections. It is contemplated that we will see higher wages and a greater scarcity of labor throughout the South than we have seen in the past five years this fall.

This section of the country depends on the negroes for common laborers, possibly 85 per cent.; skilled laborers, all whites. We find the negro labor for common work as efficient as we find the poor class of foreign labor.

The railroads throughout the South and Southwest have commenced to repair their tracks and ballast their roadbeds, which will require considerable labor.

Dependent on Negro Labor; Scarce at \$1.50 a Day.

SCHUYLER A. OBENSHAIN, C.E., General Manager Obenshain Construction Co., General Engineering and Contracting, Durham, N. C.

We find labor scarce at \$1.50 per day. Here we are dependent upon negro labor.

Labor Troubles Unknown in Cotton Mills Employing Native White Help.

C. M. AWTREY, General Engineering Construction Co., LaGrange, Ga.

We are not contemplating any contracts of any size in this immediate section during the coming summer and fall.

The supply of labor, both skilled and unskilled, is fully adequate to the demands.

While all contractors are reasonably busy, there is no great demand as was the case in 1906 and 1907 for almost all kinds of labor in all lines of work.

There has been no exodus of labor to the North or West from this section, while the demands for negro labor stands about normal as to ratio with white labor.

In our immediate section, devoted almost entirely to the manufacture of heavy cotton duck, the demands for skilled labor (all white) is very brisk, growing out of the fact that the Callaway group of mills have put on full night forces to fill their growing time contracts, necessitating a doubling up in all departments, and for the most part they have been able to fill these places with desirable help.

The excellent management of these properties really places the different managing units in a position to pick their help, the same being true in the past two years of the Lockwood & Greene interests, and which is also true of Dunson Mills and those of Wellington Sears & Co.

The question of labor troubles growing out of unsatisfactory schedules of pay or hours is totally unknown to this section, and will remain so so long as the mills are able to supply their labor demands from the native population, who understand and appreciate more fully the efforts of the different managements to keep them fully employed on reasonable scales of pay and hours, as well as their great outlay of expenditures for modern schools, churches and co-operative irrigated gardens, both flower and vegetable.

Normal Conditions Reported by Chattanooga Firm.

L. C. SMALLWOOD, President Smallwood Company, Contracting and Constructing Engineers, Chattanooga, Tenn.

We have ample labor supply for all contract work in sight.

We depend almost entirely on negro labor, which is fairly efficient.

There doesn't seem to be any possibility for higher wages, and the outlook for construction work is comparatively good for the summer and fall.

Fairly Busy, With Ample Labor in Sight.

L. G. BERRY, Manager Southern Engineering Co., Charlotte, N. C.

My observation is that we are fairly busy; in fact, more so than three or four months ago. We are not working laborers ourselves, but are in pretty close touch with the contractors of the South, and are speaking from observation.

We think the supply of labor ample for all the contract work in sight, and while there will not be a shortage of labor with us unless other sections draw from our numbers, yet we will not have anyone loafing.

"South Blessed With Better Common Labor Than Any Country in the World."

P. B. HOPKINS, Building Contractor, Atlanta, Ga.

At the present time we have plenty of labor of all kinds for building, though a number of mechanics have left Atlanta recently, the most of them going to Augusta, Ga.; Nashville and Copperhill, Tenn. Building here at the present time is mostly of high-class apartments and homes; very little of the medium class of homes, such as bungalows and frame structures.

The labor supply is ample, I think, for all contract work in sight; the wages are about normal.

I only use negroes for common labor. My experience has been that no negro mechanic is equal to a white

mechanic. As for the common labor question in the South, we are better blessed than any country in the world. I would not exchange the negro as a common laborer for any other race. The negro and the Southern white man understand each other thoroughly.

Excess of Skilled Labor Reported From Florida Town.

G. A. JONES, with M. L. Hollady, Contractor and Builder, St. Petersburg, Fla.

Prospects are not very good for the future in contract work, especially in the building business. There is some residence work, but not enough to supply all of the mechanics, especially the carpenters; they are in excess of the demand. The same can be said of the common labor, but the outlook for the common labor is better, especially in this county, on account of the public road work, which is just now commencing.

The proportion of white and colored labor will average about 90 per cent. colored. My experience with the common labor in this part of the country is that the negro labor is more satisfactory than the white.

Great Activity Reported by One of South's Large Contractors.

R. B. OLIVER, President and General Manager the Oliver-Hill Construction Co., General Contractors, Knoxville, Tenn.

There is at present in this section of the country more than double the amount of construction work under way than there has ever been before at one time. In one county alone the payroll has doubled ten times in the last year. From the present outlook this condition will last for the next five or six years.

The South is not dependent as it was ten years ago on the labor. We would say that 50 per cent. of the labor in this section is white labor. The supply of labor is nothing like ample for the contract work in sight. While we do not look for wages to advance very much, we rather think that the contract will not be finished on time. As to the efficiency of negro labor, we figure them in our work about 25 per cent. more efficient as day laborers than white labor.

Prospects for a Boom in the Fall.

E. M. GEORGE, Rock Hill, S. C.

While not actively engaged in contracting at this time, it is my observation that there is about the usual amount of work going on, with prospects for a boom to start in the early fall.

Labor costs at the present time are about the average for ordinary conditions, but as practically all laborers have employment now, any considerable increase in building and other activities would most surely increase the cost of labor.

Great Variety of Conditions in Texas.

J. C. JOPLING, J. C. Jopling & Bro., Building Contractors, Houston, Tex.

There is a wonderful variety of conditions in Texas just at this time. Dallas and surrounding country and the northern and western part of the State are employing more than their supply of labor, while the part from Houston southwest along the Gulf Coast has a large surplus of idle labor. Most of the contract work in that section that is being done is public improvements. Oklahoma is also taking some of the surplus labor.

As to the prospects, owners in the South seem to be very conservative, even cautious, owing to national and international conditions, but in spite of that prospects are favorable for a fair fall and winter business, with ample labor to take care of everything by some shifting.

Our labor consists of about 90 per cent. negroes and 10 per cent. whites in South and Central Texas, about 60 per cent. white, 30 per cent. Mexican and 10 per cent. negroes in Northwest Texas. In all cases we find the negro more efficient for heavy common labor in the South, with the white efficiency increasing as skill is required.

"Not Dependent on White Labor, but May Have to Resort to It."

J. C. RYAN, General Manager McIsaac & Gentry Co., Chattanooga, Tenn.

We understand that labor is moving northward from this section. There is more contract work in this section than for several years; labor is scarce; in fact, all contractors are working shorthanded.

We are not dependent on white labor, however; may have to resort to this class of labor before fall. Several contractors, figuring on Yazoo & Mississippi Valley Railroad work out of Vicksburg last week, estimated that common labor would bring \$1.75 to \$2 per day before work was completed, in event same was let.

We are paying \$1.50 per day of 10 hours, but may advance to \$1.75 in next 30 days to keep forces.

60 Per Cent. Increase in Construction—Supply of Labor Ample.

B. L. LUCAS, Manager Blueston Construction Co., Bluefield, W. Va.

There is quite a lot of contract work under construction in this section, and the prospects look good for a big business in this line.

The percentage of construction work this year over that of last year will be about 60 per cent. The supply of labor is ample for all contract work in sight. We have had no trouble so far in securing labor. It may be possible that there will be a shortage in labor later on, but we do not predict that there will be.

Common labor wages have advanced 25 cents on a day through this section over that of the previous year.

We depend upon from 75 to 85 per cent. of colored labor and from 15 to 25 per cent. of white labor.

The percentage of efficiency, we should say, as near as we can tell, is about 80 per cent.

Depends on Colored Labor, and Keeps Busy.

G. C. KAUCHER, Kaucher, Hodges & Co., Contracting Engineers, Memphis, Tenn.

We have not found a shortage of labor in this section, although we depend upon the colored population to furnish the labor. There seems to be a great deal of white help to be had. We have found that the white labor in the South does not do as well as the colored.

In regard to the future business, it seems that there is a great deal of work contemplated, and we ourselves are fairly busy. Conditions are a great deal better than they were last year.

Rush of Work—Scarcity of Labor.

B. E. BROOKS, President Brooks-Calaway Company, Railroad and General Contractors, Atlanta, Ga.

In our particular line of work there is considerable more work going on in this section than usual. The Southern Railway Co. is doing a good deal of double-tracking, having 50 to 60 shovels at work on their line. There is still other work to be let, which will have considerable bearing on the labor question in this vicinity.

On May 1 we advanced common labor 20 per cent., and we find it difficult to secure labor even with this advance. Up until about the 1st of May both skilled and unskilled labor seemed to be plentiful, and the efficiency of both classes is in adverse proportion to the rise of wages. All skilled labor is white and unskilled is colored.

We are of the opinion that within the next 90 days there will be a large demand for both skilled and unskilled labor.

Building Operations Not Up to Former Years.

M. S. CLARK, Roanoke, Va.

There is quite a number of buildings going up here, but not so many as in other years. The indications are that building will be better later on. Labor is not too plentiful. A few Northern and Western firms have advertised for men in the local papers, but I hardly think they secured many, if any. We use all white mechanics,

negroes for common labor. I haven't found the negro labor very satisfactory here. It is hard to get them to work. Those that will work have jobs the year around and the rest are what would be called "stakers" in the West—work one day and lay off ten. Mechanics are rather scarce here at the present.

The scarcity of labor has not advanced the wages to any extent. I don't think the war has affected business here to any extent, and everything is moving along as usual.

Class of Negroes Which Is Called the White Man's Burden.

JAS. F. WRENN, President McGuire Construction Co., General Contractors, Newbern, N. C.

The prospects for work in this locality are increasing every week, especially in municipal and highway construction. The good-roads movement in this section is the paramount issue of the day, as little has been done to the highways since they were handed down by the Indians up to a couple of years ago, but since then many miles of permanent roads have been constructed, with a growing demand for more.

We are now just completing a contract on 18 miles of permanent highway for Craven county and making ready to start on another contract for 18 miles more for the same county.

The labor question in this section is, and has always been, a very grave one, due to the negro, whose habits are shiftless, with little regard to anything beyond his own personal necessities, which only require from two to three days' labor to satisfy in any week. The least we are forced to pay this class of labor the better off the community, as the great majority of them are not home-builders, but rather live from hand to mouth, who have a woman who is a servant in some white man's home with free access to the pantry, from which they draw lavishly to supply the needs of the trifling hangers-on around the street corners. And yet we raise a great hue and cry about the high cost of living. The wage-earner among the white class, from the mechanic to the banker, pays little heed to the number of mouths fed from his table, supplying the sustenance to that class which may justly be termed "the white man's burden." The little attention paid by the duly appointed officers of the law to the enforcement of the vagrancy law is the chief cause of conditions as they exist with us today.

Labor in this section is growing scarcer every week, due to the number which are being shipped out of the State for construction purposes. This is being done in violation of a State law.

The State of North Carolina within the past week entered into a contract with the Hardaway Construction Co., which has a contract at Badin, N. C., for constructing a power plant, to furnish to this company all State convicts at the straight price of \$2 per day. To meet this demand the State withdrew all of its convict forces from railroad and highway construction. This, to my mind, shows the growing scarcity of labor, and indicates the price we may be forced to meet before the season's work is well under way.

We are dependent on the negro entirely in this section for laborers, as there are few, if any, whites seeking this class of work.

Activity in Construction—Negro Labor Commended.

W. P. BLAIR, Manager Inglenook Construction Co., Birmingham, Ala.

We have quite a little construction work going on in and around Birmingham. Contractors all seem to have some work, and are not experiencing any trouble in keeping both laborers and mechanics, yet labor of all kinds seem to be busy.

Quite a few mechanics are going North, expecting higher wages, but we can always depend on finding them here through the winter season.

Negro laborers for all our rough and heavy work are by far the best; that is our experience. The negro is a more or less dependable being, and is glad, as a rule, to stay in his place, and he usually gives good results as a laborer.

Mexican Situation Expected to Complicate Labor Problem.

J. B. SILVER & Son, Contractors, Crystal Springs, Miss.

From what we can observe, there will be more contract work in the way of roads, paving, etc., done this summer and fall than there has been for some few years past. This is indicated by bond issues already voted and prospective.

The supply of labor at present is shorter than it has been for some time, although there is no serious shortage as yet. In this immediate vicinity they are shipping about 75 cars of tomatoes and other vegetables per day, and this naturally causes a demand for labor. However, it looks very much as though prices for labor will be higher this fall than for some years past. The price usually paid labor is \$1 to \$1.50 per 10-hour day. If there is any appreciable exit of labor for Northern points, there will no doubt be a scarcity in the South.

We use mostly negro labor, as we find them easier handled and just as efficient as white labor. We believe this is true all over the South. The recent developments in the Mexican War will no doubt complicate the labor problem to a great extent, as a great many white laborers in box factories, cotton mills, etc., are called out with the militia, and their places will have to be filled by negroes ordinarily used on public work.

No Labor Shortage Here—Higher Wages Not Expected.

C. O. EURE, Contractor and Builder, Hattiesburg, Miss.

I do not believe that there will be a shortage in labor nor that there is a probability of higher wages.

I use white labor to the extent of work that requires skill; in all other work I use negro labor.

Structural Steel Work 50 Per Cent. Off—Labor Supply Ample.

W. R. STARBUCK, Secretary and Treasurer Southern Bridge Co., Birmingham, Ala.

The amount of contract work in any way connected with structural steel or steel bridges, either now or in sight for the summer or fall, is not within 50 per cent. of the average for the past years.

The supply of labor is ample for all contract work in sight.

We depend upon about equal number white labor and negro labor. As to efficiency, they are each most efficient in the part which we assign them to do. For actual labor in construction, the black man is most efficient in lowlands and white in the hill country.

Common Labor Scarce in an Oklahoma City.

DON A. TOLBERT, President The Tolbert Construction Co., Engineers and Contractors, Muskogee, Okla.

It is almost impossible to secure common labor in this section of the country.

The contractors are working negroes exclusively, except in communities where they are not permitted to live.

Common labor in this section of the country is drawing from 25 cents to 35 cents per hour.

Eight-Hour Law Declared a Detriment.

N. S. SHERMAN, Treasurer, N. S. Sherman Machine & Iron Works, Oklahoma City, Okla.

There is a considerable amount of work being done in this section at the present time, perhaps a great deal more than has been done for the past three years. However, there is room for improvement as compared with five or six years ago.

In our opinion, there will be a larger volume of work this fall than at the present time.

There seems to be plenty of laborers for all the contract work that is in sight; in fact, from our own experience the present year we would state that there was perhaps a surplus of laborers, and this we believe would be true except in a few localities in the mining districts.

The majority of our work is handled by white labor-

ers, except further South, and then we employ negro labor, and in our opinion the negro will do more work than a white laborer, for the principal reason, however, that the white laborer is more independent, and the further fact that a foreman in charge of work who knows how to handle negro labor can crowd them a great deal more than he can white labor and consequently get greater results.

We don't know that there is anything in connection with the employment of common labor that we feel like discussing, only we might add that it is and always has been our opinion that the eight-hour laws were a detriment instead of a benefit to common labor, and in the writer's 10 years of experience in construction work 90 per cent. of the labor that we have employed concurred in this opinion.

No Labor Troubles Anticipated.

F. W. LONG & Co., General Contractors, Jacksonville, Florida.

We do not anticipate labor trouble of any kind here in the South this year.

Whites Better Mechanics—Colored Laborers Preferred.

EDGAR J. HAHN, Road and Drainage Contractor, Little Rock, Ark.

Construction work is more active in this vicinity than it has been for the past couple of years. There has been no marked shortage of labor as yet, although somewhat less abundant than last year.

I work both white and colored labor—white labor on our dredge boats and drag lines and colored labor for clearing right of way. As a rule, we find the white labor better for the mechanical work, but very much prefer the colored labor for general laborers.

Have Trouble in Securing Skilled Labor.

G. G. MITCHELL, Contractor and Builder, Greenwood, Miss.

The outlook in this immediate locality is very good for the summer and fall business.

We have some trouble in securing skilled labor in this section. The wages for carpenters range from 25 to 40 cents here, and this price should command a better class of workmen than we can get.

We work both white and negro carpenters, and they average up about the same in efficiency.

Common Labor Very Plentiful—Skilled Labor in Some Lines Scarce.

W. F. AULT, General Contractor and Builder, Little Rock, Ark.

Common labor is very plentiful in this section of the country. Skilled labor in some lines is scarce; bricklayers, for instance, are not very plentiful. As far as I can see, there is plenty of labor other than bricklayers in this section to take care of all the work. There is not very much building under construction in this State, and prospects not very bright for any great deal of work the balance of this year. I have at the present time a three-story brick and fireproof building for Ike Kempner & Bros. of this city, approximate cost \$45,000, to be completed in about 90 days, and several other small jobs in town under construction, but not as much work as usual.

By a Contract Firm Which Pursues the Mistaken Policy of Trying to Keep Its Name Out of Newspapers.

We now have under way approximately \$1,000,000 worth of contracts for textile mills, which class of work we specialize in, and are at present declining to submit proposals for any additional new building unless it is for one of our regular clients for whom we have been working in the past.

We have had no trouble whatever with the labor situation, finding it very easy to get all that we need. The

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common labor is, of course, all colored, or practically all, and is much more satisfactory than the white labor to be found through this section, and also more satisfactory than any of the foreign labor. This also applies to brick masons. The greater part of the carpenters are white mechanics, although some of the highest skilled carpenters in this territory are colored. We are anticipating a slight advance in labor before the first of September, but this will not amount to more than 10 or 15 per cent., and quite likely not this much.

We, of course, do not want our name used in any way in any publication; in fact, use every effort possible to keep our name out of all publications where possible to do so.

A Building Contractor Who Prefers White Labor.

B. R. ENGLAND, Brimer & England Bros., Contractors and Builders, Knoxville, Tenn.

There have been more contracts let here recently for different kinds of buildings and more work is being planned to come out later than has been let or planned here in the past two years. We were awarded contract last week by the directors of Maryville College, Maryville, Tenn., to build dormitory building to replace one burned some time ago. This building will cost complete about \$60,000. There are several new school buildings, residences, bungalows and cottages being built here, and the Southern Railway is building large additions to its Custer shops, situated just outside of the city limits, and is giving employment to several hundred men on the additions and in the shops.

The outlook for both mechanics and laborers here is not very good. The demand for them is probably going to be greater than the supply. The large industrial development at Kingsport, Tenn., and the Aluminum Company of America at Maryville, Tenn., and at their operations at Alcoa, Tenn., have given employment to a large number of laborers and mechanics. The latter company has been advertising recently for laborers at \$2 per day. This is about 50 cents a day more than laborers were getting last year.

We do not employ negro labor to any very great extent.

Negro Labor Highly Efficient in Road Building

CLARK COUNTY CONSTRUCTION CO., INC., Winchester, Kentucky.

Our operations are confined principally to Central and Eastern Kentucky, where there is a considerable amount of highway construction work on hand at present and considerable more expected to come up soon. There is no railroad work of any consequence under way, and none that we know of coming up in the immediate future, all of which is a very considerable falling off as compared to 1912-13-14, during which time the Louisville & Nashville Railroad Co. had a great amount of work in course of construction.

Many of our skilled and unskilled laborers have left this vicinity, going principally into Ohio and Pennsylvania, and a noticeable shortage has begun to develop which will materially affect all employers of labor, especially the contractors and large farmers. We are depending almost exclusively on negro labor, and find them much more efficient in our class of work, i. e., concrete and macadam highway construction and rock quarrying.

In this connection we might add that over half of the laborers now employed with us are from points farther South, principally Alabama, Georgia and North Carolina.

Work About as Last Year—Labor Shortage Expected.

J. N. GILLIS, J. N. Gillis & Son, Railroad and Highway Construction, Brewton, Ala.

We find contract work in this section about the same as last year; very little railroad work doing; mostly highway work.

Labor is not nearly so plentiful as last year. We work mostly negro labor, and we are well satisfied with them.

The outlook for summer and fall does not appear very good to us, but we can never tell here. Last year we expected very little work and did more work than ever before. I think it possible that labor will be short soon.

General Contractor Declares "Negro Laborers the Best in the World."

GEO. C. GOODRICH, Goodrich Construction Co., Anniston, Ala.

At the present we have about enough labor for work on hand, but find it is getting to be a little scarce now, and we look for it to be very scarce in the next few months.

There is a great deal of road work in this section. While the railroad work is not as plentiful as it has been for the past few years, the road work is absorbing all of the labor.

I use altogether in my work negro laborers, and find them very satisfactory; in fact, I think negro laborers are the best laborers in the world. I have worked a great many foreigners, but they do not compare with our negroes, and I think the South is blessed in having this class of laborers. Negroes are very peculiar, though, and it takes a person who is raised with them to understand how to work them successfully. They rarely ever strike, and the more prosperous a person is the better they like to work for him; in fact, they do not care to work for anyone who is not prosperous. When they become dissatisfied they simply move on to the next job without striking and causing any trouble, which I think makes them superior in one sense to other laborers.

I don't think the negro laborers are suitable for the Northern and Northwestern people, as they do not know how to handle them.

Southern Negroes Become Unsatisfactory When Transplanted to North.

HEXING & HAGEDORN, INC., General Contractors, Mullens, W. Va.

There is a great deal of work in this vicinity at the present time, coal mines, public roads, railroads, etc., with more in sight; in fact, there is more work to be done than can be taken care of should it all start up in a bunch. However, we understand that a good portion of it will not be ready for construction until next spring, due to fact that organization of commissions, etc., is delayed.

We brought a good lot of negro labor here from our previous works in North Carolina, but we find that when they get into a country as far north as this, with no "Jim Crow" laws or other means of keeping them properly under control, the negro labor is very unsatisfactory. As yet we have not used any white labor to any extent, but will do so in the very near future, as we believe that in the end it will be a great deal more satisfactory. We do not find any appreciable movement of labor from the more Southern States in this section.

As to a probability of higher wages, we do not look for any advance in the near future. The price for contract work has not kept pace with the price of labor, and therefore the contractor cannot afford to increase his scale as he could if the situation were otherwise.

Pioneer Work in Western Carolina, With Unsatisfactory Results from Use of Native Labor.

R. H. WRIGHT, Wright-Johnstone Contracting Co., Andrews, N. C.

I am in the extreme southwestern part of North Carolina, where there has been but very little development work done. However, about a year ago people in this vicinity began to awaken, and since then there has been a good deal of highway building going on in Macon and Swain counties. Then the Graham County Lumber Co. is building a standard-gauge railroad from a point on the Murphy branch of the Southern Railway near Tipton to Robbinsville, county-seat of Graham county. We have this construction under way, and will probably complete it by 15th of October. We also have a lot of highway construction for Swain county to do, which we hope to wind up by November. Swain county will let more work by that time. I anticipate a lot of highway building in this section. Clay and Graham counties will both improve their roads within the next year, I think, and then Macon county will probably build more roads soon.

Labor is very scarce here, and not much good. We

have an aggregation of old construction negroes with us that have been with us for years. This, of course, is a great help to us. We are paying from \$1.50 to \$1.75 per day for this labor. We only work white labor at rare intervals, and find the native white labor exceedingly unsatisfactory. The native mountaineers are not good laborers, and only want to work two to four days a week. They want short hours and big pay.

From the present outlook I think that we can keep busy in this vicinity for at least 12 months yet.

100 Per Cent. Increase in Work—Laborers Shipped North.

JOS. R. COTHRAN, Case & Cothran, Engineers-Contractors, Atlanta, Ga.

It is our opinion that the amount of work now is almost 100 per cent. over the same time last year. The supply of labor from the largest cities is plentiful, but getting very scarce and indifferent in the smaller towns.

We have talked to several other contractors recently, and they all are apprehensive of high wages and are bidding higher on new work for this reason.

It was recently called to our attention that nearly 200 negro laborers were carried from South Carolina to points north as far as Massachusetts.

We depend upon white labor for all the skilled work, such as carpenters, form builders, engineers, etc., and upon negro help as laborers only.

Prospects Favorable—No Shortage in Labor Supply.

WM. R. MURPHY, The American Heating & Ventilating Co., Richmond, Va.

The actual contract business in our line on hand and under way at this time is less than for the corresponding period last year, but the prospects for the coming summer and fall will, in my judgment, make this year's business equal to that of last year.

We have not as yet found any difficulty in securing what labor that has been needed. Our general requirements are for white labor.

Dull at Danville, But With Improved Outlook.

W. K. ANDERSON, Contractor and Builder, Danville, Virginia.

Building here is dull; not as good as previous years. I believe business is looking up some, with fair prospects for good fall business.

There is plenty of common labor. Carpenters, especially trimmers, are needed. There is a prospect of increase in wages.

Plenty of Labor—Advanced Wages Not Warranted.

H. W. CARDWELL CONSTRUCTION CO., Texarkana, Tex.

We find plenty of labor in the Southwest, entirely Mexican and negroes. There is no especially increased amount of work coming up in this section, and we are of the opinion that labor conditions do not warrant advanced wages.

Finds Conditions 300 Per Cent. Better Than Last Year—Work Negro Laborers and White Mechanics.

E. W. PARKER, General Contractor and Builder, Tampa, Fla.

I do a varied line of general contracting. I use negro laborers altogether, and find them better for that work than the class of white labor that is available in the South. I use white mechanics in all branches of of trade, and find them more efficient than the negro mechanic. At the present time we are having no trouble getting all the men we want for laborers and mechanics, though I do not think there is an oversupply of them.

I consider conditions in this country now in my line

300 per cent. better than they were last year. I do not look for any special boom; we don't want one; but I do think we are going to have a steady increase in substantial business until we find ourselves swamped and unable to handle it. I believe that the demand for laborers and mechanics in this State will raise wages in the near future.

Contract Work Increasing—Labor Supply Ample.

I. H. VICK, Bridge Commissioner and Contractor, Waynesboro, Miss.

The contract work of various kinds in this section is moving along fairly well at present, having increased from 25 to 40 per cent. in the last three months. The supply of carpenters in our town is ample for all the work, and labor is plentiful since the farmers have started to laying by their crops. The negro laborer in this vicinity gives better satisfaction in moving brick and mortar, concrete and all heavy labor. Most all our carpenters are white, just a few negro carpenters I am using on my bridge work. Just half whites and half blacks.

I can't say just what effect will be on white labor since the recruits have started to the border; not much, I think.

The outlook is that improvements of all kinds will be more active in the near future.

Labor Shortage Expected Later.

J. N. GEORGE & SONS, General Contractors, Shreveport, La.

There is ample labor for what work is under way at present, but recently there have been a few large road contracts let, both in Louisiana and Southeast Texas. Our firm recently secured a large road job in Desoto parish and another in Jones county, Mississippi. Something over \$10,000 worth of work will be let in this State in the next 90 days, all road work.

From the outlook, we will have a labor shortage in this section later in the summer and fall. The cotton crop is looking good over the State, and will require a large bunch of laborers for gathering.

We use mostly negro laborers in this section, and we find them good laborers for our class of work.

Kingan & Co. to Enlarge Richmond Packing Plant.

Referring to recently announced plans for additions to their Richmond (Va.) branch, Kingan & Co., main office at Indianapolis, write to the MANUFACTURERS RECORD:

"For some years past we have been operating a hog-packing plant in the winter months, beginning operations usually about October 15 and ending about March 15. Last winter we packed about 55,000 hogs.

"We are now adding additional cold storage and refrigeration, which will enable us to operate more freely during the entire year. The new building is 92x132 feet, five floors, built of reinforced concrete and absolutely fireproof throughout. We will also have a beef-killing plant, with chillrooms; also facilities for handling a reasonable quantity of sheep, lambs and calves. The refrigerating plant will have two 50-ton refrigerating machines. When the buildings are completed we will have a thoroughly modern and up-to-date packing plant, all under United States Government inspection, capable of handling 1000 hogs, 100 cattle and 200 small stock daily.

"Work has already begun on the new plant, nearly all of the contracts for buildings and machinery are let, and we expect to have it in operation by November 1."

\$2,250,000 Drainage and Levee District.

The Indian Bay Levee and Drainage District of Phillips county, Arkansas, plans to construct a system for draining 125,000 acres of land to be developed for agriculture. The County Court, Helena, has appointed Walter E. Winn, chief engineer of the Winn Engineer-

ing Co., Helena, to prepare preliminary surveys, plans, estimates and a report as to the feasibility of this improvement. It is estimated that the levees will cost \$2,000,000 and the canals \$250,000. Construction proposals will be invited after the other details have been determined. Forty miles of standard levee, drainage canals, pumping plants, bridges, culverts and gates will be required.

Convention of National Fertilizer Association.

The twenty-third annual convention of the National Fertilizer Association and the eleventh annual meeting of the Southern Fertilizer Association will be held at Hot Springs, Va., during the week beginning July 10, 1916.

The proceedings will be of great interest to everybody in any way identified with the fertilizer industry or the allied trades.

The various sections will meet as follows:

The Soil Improvement Committee of the National Fertilizer Association will hold its meetings on July 10 and 11.

Meeting of the subscribers of the Soil Improvement Committee of the National Fertilizer Association, July 11.

The Southern Fertilizer Association, July 11.

The Soil Improvement Committee of the Southern Fertilizer Association, July 11.

The National Fertilizer Association, July 12 and 13.

Practically the entire week will be devoted to the discussion of all the important factors that make for a larger average yield per acre of better crops.

The speakers and the subjects of their addresses are: President's annual address, by George Braden, Louisville, Ky.

"The Need of Co-operation Between Manufacturers and Bankers in the United States," by F. C. Schwedeman, National City Bank of New York.

"The New Agriculture," by Prof. G. I. Christie, Superintendent of the Department of Agricultural Extension, Lafayette, Ind.

"Appraisals and Depreciation of Fertilizer Plants," by W. S. Rankin, general manager of the Appraisal Company of the South, Savannah, Ga.

Decrease in Coal Output of Arkansas.

Retrenchments in operating expenses of railroads and competition with fuel oil from nearby fields are said to have been the prime reasons for the decline in the coal production of Arkansas in 1915 over 1914. According to the United States Geological Survey, the production of coal in Arkansas in 1915 was 1,652,106 tons, valued at \$2,950,456, as compared with 1,836,540 tons, valued at \$3,158,168 in 1914, the decrease in quantity being 184,434 tons, or 10 per cent., and the decrease in value for the same period was \$207,712, or 6.6 per cent.

Sebastian county, which produces about 70 per cent. of the total coal output of the State, decreased in 1915 more than 250,000 tons, whereas all other counties recorded increases.

\$2,000,000 Chemical Manufactory.

The Mineral Refining & Chemical Co., capitalization \$2,000,000, has been incorporated to build a plant at St. Louis, the daily capacity to be 50 tons of a substitute for white lead. Contract for constructing the buildings (eight wood and a stone structure) has been awarded to the Fruin-Colnon Contracting Co. of St. Louis. Havana and New York capitalists are interested in the enterprise, Joseph Marimon of Havana being president and M. J. Mandulay of Havana, now in St. Louis, being a director. R. Bonastre of New York is in St. Louis representing the New York capitalists, and wires the MANUFACTURERS RECORD indicating that further details will soon be announced.

To Construct Steel Barges.

Steel barges for oil and other products will be built at Fairfield, Md., near Baltimore, by the Riter-Conley Manufacturing Co., a subsidiary of the McClintick-Marshall Construction Co. of Pittsburgh. They will be constructed at the Ellicott Machine Corporation's

subsidiary Fairfield plant, which the Riter-Conley management has leased. The plant includes 16 acres of land, with 700 feet of waterfront. It was established in 1913, and has constructed hulls of eight hydraulic dredges and three steel barges, and is now constructing three steel tugboats. The Ellicott Machine Corporation builds machinery for the vessels.

\$150,000 Cottonseed Products Plant.

An investment of \$150,000 for a cottonseed products plant at Dallas, Tex., has been decided upon by Alston Boyd of the Crescent Cotton Oil Co., Memphis, Tenn., and associates. The mill will be equipped with six presses for a daily capacity of 100 tons of cotton oil, besides machinery for bleaching lint cotton for paper pulp manufacture and equipment for mixing feed. W. S. Fontaine of Dallas is managing the preliminary arrangements, and E. B. Van Keuren of Birmingham, Ala., is the engineer.

\$2,000,000 Graphite Company Planned.

A \$2,000,000 company to develop graphite in North Carolina and to build a manufacturing plant at Atlanta is planned by Atlanta, New York and Canadian capitalists. H. M. Ashe of Atlanta is secretary of the preliminary organization, and advises the MANUFACTURERS RECORD that at present no further information can be given.

Believes Lower Freight Rates to and from South Would Relieve Eastern Congestion.

OKLE C. PAINTER, President and Manager E. O. Painter Fertilizer Co., Jacksonville, Fla.

We, like many others, have felt the inconvenience of the freight congestion in New York and other Eastern points, as it has been impossible for us to get some cars of our goods through the yards there. It seems to us there should be some means by which a great deal of this congestion could be overcome either by a rearrangement of freight rates or a lowering of the freight rates from the interior South. In other words, we have materials coming from as far west as Cincinnati that go to New York and thus to us by Clyde Line cheaper than they can come to us all rail to Jacksonville.

If the railroads would make their all-rail rates as reasonable as the rates to New York or Baltimore, and thus via steamship lines here, I believe more of the freight would be shipped by rail and avoid a great deal of congestion that now takes place in the East. It stands to reason that as soon as we get a cheaper rate direct than by New York that we are going to ship that way. Frankly, I would just as soon have our goods come all rail, because they come in sacks, and it would thus avoid a second handling. You can well understand that with most of the freight leaving New York, some shipments for abroad and some shipments up and down the coast, that it is going to cause a congestion in New York which no amount of locomotives and work on the part of the railroad people there is going to overcome. The steamships can only carry just so much and go just so fast.

I do not pretend to have any arguments to meet the various reasons the railroads would put forth as to how they could not make a cheaper all-rail freight rate, etc. But I believe the congestion in the East will do more to solve the question of better freight rates than anything else. The railroads claim they cannot carry freight any cheaper, and the State Railroad Commission allows them to increase the freight rate here, there and everywhere, but when the year's work is finished the reports go out showing how many thousands and even millions of dollars the railroads have made the past year. It does not seem consistent to me.

A cheaper freight rate would be of advantage to the people, no matter what section they live in, because they pay the freight, no matter what the manufacturers have to pay. Whether great or small, the railroads are making their money off the farmer or off the man in the little town twice; once for bringing the product and again for carrying it out. It seems to me they should be satisfied with a little less profit and give the man in the field a chance to make a little and get his goods more promptly.

The South Leads Nation With \$10,000 per Share Stock

THIS SECTION CONTROLS WORLD'S SULPHUR TRADE — REMARKABLE
ADVANCE IN MANY SOUTHERN SECURITIES

[Special Correspondence Manufacturers Record.]

New York, N. Y., June 24.

The best evidence of the South's recovery from the gloom and depression following the war in Europe and the extent of the return of better times may be most plainly shown by comparison of the low prices of some Southern securities in 1914 with the current prices of today.

These show beyond dispute that the South feels part of the prosperity due to war conditions abroad, and they demonstrate beyond contravention the costly error of Eastern capitalists and investors who for a period could find no placement there for either speculative or investment purposes.

The phenomenal yields in dividends of some Southern properties and the tremendous advance in the price of Southern securities generally since the low level reached in 1914 are in themselves powerful object-lessons as to the profits and potentialities of Southern development.

That New York had a period of obsession whereby it lost tempting paper profits of most handsome volume might cause no feeling of concern to the South were it not for the fact that while this situation ruled there was partial stagnation in many of the productive channels and proposed developments of enterprises in the rich fields of the Southern States.

Conservatism is very properly considered a most valuable asset. This holds true particularly in a time of war stress, uncertain future and great expansion. But it is an open question whether the investors in this country, and especially those with knowledge of the South, have not let caution cost them a lot of money.

When the European war broke out, in 1914, and the nations abroad rushed their armies into action, there was a financial upheaval the biggest the world has seen. Prices of standard securities here, as elsewhere, declined far below their real value and bargains were everywhere to be found in bonds and stocks of good companies with enterprises under way in every section of the country.

As confidence gradually returned the conservative investors of the United States found themselves in position to command unusual opportunities. Having virtually the only supply of free money in the financial world, they were in a unique vantage point. That would have been the psychological moment for those with first-hand knowledge, with cash in hand and faith and clarity of vision in the future of the South to have taken up the wholesale development of its vast natural resources, to have secured stock representation in its railroads, its banks, its mines, its industrial corporations and the many and varied channels opened by the world debacle in security prices.

Perhaps this could have been brought about on a tremendous scale but for the germ of "foreign investment" which suddenly infected finance and investment circles. The glamour that was thrown about the new order of things prevented for a time that clear survey of the domestic field, and which resulted in the loss of golden opportunities in the South and Southwest for people with money and knowledge and courage.

From a nation selling stocks and bonds to other nations, we were metamorphosed overnight into purchasers of other people's securities. Germany, France and England, needing billions for war funds, sold us securities, bargained for credits for the purchase of war munitions, ordnance, guns, horses, provisions and nearly everything of a salable nature, and carried us off our financial feet by the fervor of their appeals for our gold in exchange for their war loans or their holdings of American securities.

For a time it was hard to float American promotions of new enterprises and almost impossible to secure new funds for carrying forward going enterprises or completing those nearing completion. In this new turn of investment funds the South suffered heavily. Meritorious undertakings were in many instances held up or abandoned until the overseas clamor for funds abated somewhat. The development along new lines brought out by world needs in certain lines was slower than it

should have been, and the insistent calls of those who knew what the South had to offer to capital fell for a time upon unheeding ears.

Now that there has been pronounced abatement in the stampede to place investments outside the border lines of the United States, it appears pertinent to show just what plums in the investment, speculative and development line were missed by the investors afflicted with the microbe of foreign opportunities.

Thousands of Americans who had no sentimental feeling actuating them bought hundreds of millions of dollars in the bonds and stocks of warring countries. In most instances they thought they were getting fancy yields and good percentages, and probably they were. But the fact is that while they stood with their eyes staring across the sea waiting for the big profits, they were missing right at hand in the South profits on investment and speculation bases which would have eclipsed anything in Europe.

Reviewing some of the best-known investment and speculative securities of the South which are dealt in on the New York Stock Exchange every business day throughout the year, it is quite clearly to be seen that investors, large and small, missed many good things in Dixie. The low prices of 1914, compared with the current quotations of this date, make interesting reading for those who bought foreign stocks and bonds, which, while not depreciating, perhaps, have had only fractional advances, and which under the ban of war cannot hope for any sensational upturns.

Suppose that when German, French and British bonds exceeding \$600,000,000 were being taken by American investors the same amount of money had been invested in the stocks of Southern corporations? The returns from the latter, no more a speculative venture than the former, would have netted profits ranging from 30 per cent. to 500 or more per cent., due to enhancement in the market value of the American securities.

If purchases of Southern stocks had been made around the low prices of 1914 the lucky holders would have today, for instance, a 41 point increase in Sloss-Sheffield; 30 points in Virginia-Carolina Chemical; 123 points and valuable rights in addition in the Texas Company; 31 points in Louisville & Nashville; 39 points in Norfolk & Western, as well as an increased dividend return; 26 points in Chesapeake & Ohio; 24 points in American Cotton Oil; 25 points in International Agricultural Corporation; 41 points in Tennessee Copper; 27 points in Virginia Iron, Coal & Coke; 15 points in Nashville, Chattanooga & St. Louis; 16 points in Atlantic Coast Line; over 200 points in Southern of Kentucky, as well as a large stock dividend; 10 points in Virginia Railway, and very large profits, in some instances ranging from 30 to 50 per cent., in new iron and steel enterprises started since the war.

In addition to these illustrations of what the speculative investors as well as the permanent investor could have secured in the way of profits due to the enhancement in market values of the securities, it might be well to cite instances of the tremendous profits being made by certain Southern industries. There are two steel companies in the South newly rejuvenated with working capital and new blood in the directorate which are reported to be earning in excess of 50 per cent. profit.

In May last the stock of the Union Sulphur Co. of Louisiana, listed among the chemical securities on the stock exchange, sold at \$9000 a share. On June 17 the price had advanced to \$10,000 bid, and only a few shares changed hands at even that staggering price. Sulphur is a good thing. It is fine for the blood and for use in making sulphuric acid, which is used for a greater variety of purposes in the chemical arts than any other substance. The ownership of sulphur in marketable commodity amounts spells golden prosperity.

The authorized stock of the Union Sulphur Co. is \$400,000, but only \$200,000 is reported outstanding in 2000 shares of the par value of \$100 each. But it is not really necessary for one to own many shares of this

greatest dividend producer on the Western Continent. Each share receives a dividend, it is currently asserted, of 100 per cent. a month, or \$1200 a year. Thus the owner of each 10-share block gets not less than \$12,000 a year in dividends and can note the steady advance of \$1000 per share per month in the quoted value of his securities.

While the South boasts the location of the greatest sulphur deposits known in the world, producing today more than 70 per cent. of the sulphur consumed in the entire world, its literal golden stream of profits goes into the pockets of a limited number of wealthy people, nearly all living in New York. Henry Whiton, president, and Erskine Hewett, secretary, of the Union Sulphur Co., and Edward Severance, director, represent three of the half-dozen families who divide monthly the fabulous returns from the Union Sulphur Co. of Louisiana.

President Whiton is the son-in-law of the late Herman Frasch, the chemical engineer who devised the pumping process of extracting the sulphur from beneath an overburden of 500 feet of Louisiana quicksand and bringing it to the surface ready to be marketed without refining. Mr. Erskine and Mr. Severance represent their family interests, while the Twombles have no direct representatives in the management of this close corporation.

Because it had until the development of a big sulphur mine in Texas a virtual monopoly of a widely-used product, and withal is a close corporation, whose stockholders are few in number, the Union Sulphur Co. does not ask for publicity. It makes no report for the general public and is perfectly willing to be let severely alone.

The Louisiana official figures give the production of sulphur by the Union Company in 1913 as 700,000 tons, while United States Government figures put the 1914 production at 328,000 tons. Possibly one represents the actual production and the other the shipments. In either case, it made and distributed around \$3,000,000 each year in dividends, and it has not one disgruntled shareholder.

While sulphur was discovered in Calcasieu parish, Louisiana, in 1865, it was not developed until Herman Frasch, former chemist for the Standard Oil Co., undertook the task of inventing a system that would force the sulphur from the mouth of the extinct volcanic crater buried beneath 500 feet of Louisiana quicksand, after several companies had failed because they had not been able to find any profitable way to mine the sulphur. It was not until 1903 that the company produced sulphur in paying quantities. In 1904 the mine supplied the American market and shipped sulphur to France, breaking the absolute monopoly of the European sulphur market theretofore held by the Italian and British owners of the sulphur deposits of Sicily.

In 14 years the Union Sulphur Co. grew from a pigmy producer of sulphur to the controller of the world's market for sulphur and into the position of an industrial holding the premiership not only of the South, but of the continent as the highest-priced security paying the biggest monthly dividends.

The Freeport Texas Company of Freeport, Tex., financed by a combination of interests which include the Swensons, bankers of New York; F. A. Vanderbilt and associates, affiliated with the National City Bank, and other prominent figures in the financial district, seems destined to become a formidable rival of the Union Sulphur Co. in two ways. First, it is second to it now in the production of commercial sulphur, and second, it may ultimately vie with it for the honor of being one of the best dividend-payers in the country.

While the Freeport-Texas Company has been under forced development for a few years only, it ranks in the dividend list as distributing 10 per cent. quarterly, meantime taking care of progress out of earnings. Its shares are quoted around \$900 a share, and its future would look bright enough to attract even those investors who like their securities printed on foreign paper.

The company is classed as a chemical issue merely because it produces sulphur. But it is not interested in the manufacture of chemicals except to supply the trade with high-class sulphur. It is incorporated under the laws of Delaware, and has a capital stock of \$2,000,000, all of which is held under a voting trust agreement.

Like its rival, the Freeport Company is reticent as to its operations, but it is making rapid headway in developing its valuable sulphur properties. All its plants are located at Freeport, Tex., about three miles from

the Gulf on the Brazos River. This gives the company a deep-water route for its line of steamships operating between Freeport and New York city, and for water shipments to other ports also. The company likewise owns the townsite of Freeport.

The company is operating a dual pipe mining system, forcing steam down one pipe and the liquid sulphur up the other. As it comes from the pipe the sulphur is piped into drying vats and thence is shipped to market.

It is said, without official verification, however, that the company is producing 500 tons of sulphur daily, and that it derives a profit conservatively estimated at \$15 per ton.

This is equivalent to profits of \$750 every working day, and on the basis of 300 working days \$2,250,000 a year, or more than 100 per cent. on its entire capital stock. The Freeport Company is credited with the ownership of an area of sulphur-bearing lands from five to ten times greater than the area of the known holdings of the Union Sulphur Co. It was recently officially announced that the company had made contracts to double its output, and this work would be pushed as vigorously as possible.

It is said in Wall Street that whenever the dominant interests in the Freeport-Texas Company care to assume leadership in the world's production of sulphur, instead of ranking second, as now, they can easily do so. With such a promising outlook it is not surprising that the stock of the company should be quoted at \$850 bid, \$950 asked, and no stockholders who have seen the stock advance several hundred points within 12 months are in any hurry to sell. Predictions of additional advances would appear soundly based upon the company's recent performances alone.

But it is not alone the sulphur-producing companies which are entitled to be classed as eye-openers for the capitalists whose eyes were turned away from the South. The shares of Gulf States Steel, with an advance of more than 80 points within a year, could not be easily disposed of when selling around \$3 per share, whereas at \$85 per share the astute investors and the keen speculators of the New York Stock Exchange buy hundreds of shares every day. The preferred issues of the same concern are also favorites in high places now, whereas when the tide was not strongly their way they, in common with other Southern securities, went begging for purchasers in that section of New York where all men with money are presumed to be argus-eyed.

In the case of the Grasselli Chemical Co., which has every right to be considered a Southern corporation, it would appear that investors seeking profit-producing enterprises would not have to look in foreign fields. The net profits in 1915 were \$4,859,000, which is an increase of 189 per cent. over 1914, equivalent to nearly 39 per cent. on the outstanding issue of \$12,614,800 common stock. Its present market price of around \$270 is an increase of more than 50 points in a comparatively short time.

Huge profits have come to Grasselli stockholders through its position as the third largest producer of spelter in the United States and its varied chemical products which have been and are still commanding fabulous prices.

The Grasselli Company has important plants, offices and warehouses at Grasselli, Ala.; Meadowbrook, W. Va.; Dothan, Ala.; Birmingham, Ala.; Clarksburg, W. Va.; Selma, Ala.; New Orleans, La.; Cincinnati, O., and St. Louis, Mo., besides its various operations outside the Southern and Southwestern States.

Its principal zinc smelters are at Meadowbrook and Clarksburg, W. Va., where the combined capacity is approximately 120,000,000 pounds of zinc metal a year, equivalent to nearly 10 per cent. of the total spelter capacity of the United States.

As the advent of peace will be followed by continued growth in the demand for zinc and heavy chemicals, the Grasselli's Southern plants would appear to be in a most favorable position.

David A. White Accidentally Killed.

By the overturning of an automobile which he was driving, David A. White, a pioneer furniture manufacturer of North Carolina, was almost instantly killed while returning from church at Hawfields, N. C., June 18. Mr. White was the founder of the White Furniture Co. of Mebane, N. C., which began operations 35 years ago. He built up a large business and created a market for his products all over the country.

NEW SHIPBUILDING PLANT FOR MOBILE

Consolidation of Interests Will Give Greatly Increased Facilities—Construction of Steel Vessels Proposed.

Mobile, Ala., June 24.—[Special.]—The amalgamation of the interests of the Alabama Iron Works and the Ollinger & Bruce Drydock Co., with combined resources of \$425,000, was announced here this week. With these two companies as a nucleus a new corporation will be organized with a probable capital stock of \$500,000, the name of which has not been determined.

Included in the deal was the lease of the plant and entire equipment of the Gulf Drydock Co., which plant will form one of the units of the new organization. The plants of the Ollinger & Bruce Drydock Co. and the Gulf Drydock Co. are equipped for building wooden ships only, and the plant of the Alabama Iron Works will still be operated as a machinery and plate plant. The new company plans to move the woodworking machinery from the O. & B. plant and combine it with that of the Gulf Drydock Co., where wooden ships will be constructed.

All activity in that line will thus be concentrated at one point. The O. & B. plant will then be equipped with repair and plate-making facilities in addition to that used at the plant of the Alabama Iron Works. Steel barges and other small steel craft will be constructed in both plants. Repairs on large ships will also be a part of the business of the new company, with the idea of working into the construction of large steel vessels from the keel up.

The new company will be named and incorporated within the next few weeks. The Alabama Iron Works has been established in Mobile for 15 years, and the Ollinger & Bruce Drydock Co. is one of the oldest of its kind in the South.

Virginia Furnace Sold, and to Be Put in Blast.

R. T. Irvine, president Intermont Coal & Iron Corporation, Big Stone Gap, Va., writes MANUFACTURERS RECORD:

"The Intermont Coal & Iron Corporation was chartered by the Virginia State Corporation Commission on June 22 with a capital stock of \$500,000. This corporation will acquire on July 1 the following properties:

"(1) Big Stone Gap furnace plant, formerly owned and operated by the Union Iron & Steel Co. This carries 45 acres of ground, with additional improved town lots. The plant consists of two furnace stacks, with a complement of machinery and equipment of all kinds for furnace operation. Only one of the stacks has ever been operated.

"(2) The coal lands and mines and the coking plant now owned by Intermont Coal & Iron Co., known as its Josephine plant, near Big Stone Gap, in Wise county, Virginia. This consists of 670 acres of land in fee simple, which has been operated since 1902 as a coal-mining property with 80 beehive coke ovens. The entire plant is in good repair, and the mining of coal and the production of coke will be conducted on a larger scale than heretofore. The coke-oven plant will be enlarged to 100 ovens at the outset, and later it is probable that 50 additional ovens will be constructed. In addition to the land named, this plant carries a lease from the Virginia Coal & Iron Co. of about 200 acres of coal land, which is being mined in connection with the operations on the company's own lands.

"(3) All the iron-ore holdings of the firm of Kelly & Irvine in the counties of Lee and Wise, Virginia. These mines are now being put into condition to yield the maximum tonnage of ore, and it is expected that the output will reach from 300 to 400 tons per day. In addition to this, there will be conveyed to the new company leases on iron-ore lands in the Wild Cat Valley section of Wise county, near Big Stone Gap. All these ores are red fossil, and average above 40 per cent. in metallic iron.

"(4) Limestone properties practically on the furnace lands.

"The new corporation will issue its 15-year 6 per cent. gold bonds in the amount of \$350,000, of which \$50,000 will for the present be held in the treasury. The proceeds of the remainder will be utilized for the

purposes of the company, and the furnace plant will be reconstructed and modernized so as to make it an efficient, up-to-date plant with a capacity of 150 tons of pig-iron per day, with ample working capital to operate the plant when the repairs and renewals have been completed.

"M. H. Maury of Anniston, Ala., formerly of Virginia, will have charge of the reconstruction of the plant. The reconstruction work will require about four months' time. As soon as possible the furnace will be put into blast and run at full capacity."

Opportunity for Drainage Machinery Manufacturers in Georgia—Prohibition Reducing Number of Convicts.

Savannah, Ga., June 24.

Editor *Manufacturers Record*:

With the arrival of prohibition in Georgia, county authorities are confronted with difficulties in the way of carrying out large drainage work that has been planned to be done during the next two or three years. This is especially true in some of the larger coast counties, and in Chatham county there is much drainage work necessary, and the Shaw swamp canal, in process of construction, arrangements should be made to complete this work by machinery.

Chatham county usually works 550 convicts on all classes of work, but this number is steadily being cut down, and if the work is to be carried out as planned, machinery will have to take the place of much hand labor.

This county has a fine equipment of road machinery, and under the direction of Chairman O. T. Bacon and Road Committeeman Harvey Grainger most excellent work is being done in road work.

In the Shaw swamp project a modern portable dredge driven by liquid fuel will do the work of a large gang and will not cost more than the feed and guarding of the gang that is now doing the work and will do it in much better time, as the gang now on this work have to travel quite a distance to work and a great deal of time is lost in going back and forth.

Machinery men will not be slow to see the opportunity, and doubtless before long this county will have such equipment as will enable them to push drainage work to the great advantage of the whole community around Savannah.

Difficult Dredging Problems Overcome in Deepening Houston's Harbor.

Upon completion last July of the Houston ship channel by the Federal Government and the Harris County Navigation District, the city of Houston was afforded a 25-foot channel to the sea. The full development of Houston's municipally-owned port facilities, which were described recently in the MANUFACTURERS RECORD, could not, however, be carried out until a turning-basin was excavated at the head of navigation. In order to secure these terminal facilities, which are now nearing completion, the city let a contract to the Atlantic Gulf & Pacific Company of New York, embracing 1,000,000 cubic yards of work, consisting of the excavation of a basin of sufficient size to permit the turning of the largest vessels now touching the port of Galveston.

The work was somewhat unique, in that the basin itself had to be excavated from the sides of a high clay plateau, which towered above the dredges, and as there was no other place to put the excavated material, it had to be pumped up on this shelf, which was some 45 feet above the tide. As the work progressed it was necessary to deposit the excavated material farther and farther away from the point of excavation, so that before the job was finished the material was being pumped from the bottom of the harbor to an elevation of 45 feet above the water in addition to pumping it something over a mile into the back country.

To accomplish this, at one time two dredges were used, one pumping into the other, much after the fashion of a two-stage fire service pumping system. However, the bulk of the work was done with one dredge, and was carried on at the rate of about 100,000 cubic yards per month.

\$200,000 for Improvements of Atlantic Steel Co.'s Plant at Atlanta.

Referring to the Atlantic Steel Co.'s plant improvements at Atlanta, Ga., C. A. Cowles, Jr., chief engineer, writes to the MANUFACTURERS RECORD:

"The improvements will cost approximately \$200,000. They are as follows:

"A redesigned water system supplied from old reservoir. New main pumphouse on bank of reservoir and equipped with two 16-inch 7000-gallon-per-minute centrifugal pumps driven by 200-horse-power alternating-current motors. Space allowed for additional 7000-gallon unit. This pumphouse of brick, with steel roof trusses and corrugated-iron roofing. Pump from reservoir directly into 24-inch bell and spigot line which leads in one direction to a steel standpipe 18 feet in diameter by 72 feet high and in the opposite direction to the plant. This main bell and spigot line will contain about 1150 feet of 24-inch pipe and 450 feet of from 18 to 10-inch pipe. The branch supply lines will contain 940 feet of 12, 10 and 8-inch B. & S. pipe.

"In our old system water is pumped from a pond located in the center of the plant. Waste water flows by gravity from the reservoir spoken of above. The old supply pumps now in use will be installed in a new concrete and wood pumphouse and will pump the waste water through an old 10-inch line connected to 276 feet of new 12-inch line, which, in turn, will empty into a concrete open trough 5 feet wide and 4½ feet average depth, 816 feet long. Hot water from our blooming mill heating furnaces will flow by gravity directly into this canal, and hot water from the open hearth will flow by gravity through a 16-inch bell and spigot line 100 feet long into a sump which overflows into the canal. A new wood and concrete pumphouse will be located at this sump, equipped with old pumps which will pump hot water through an 8-inch bell and spigot line 396 feet long to our boiler-house.

"In the boilerhouse we are installing a new turbine-driven 300-gallon-per-minute boiler-feed pump.

"The open concrete canal empties into a sump on the opposite bank of the reservoir from the main pumphouse, from which all water will be pumped through a cooling spray system by a 10,000-gallon-per-minute low-head centrifugal pump driven by a 100-horse-power alternating-current motor. The pumphouse will be constructed of brick and concrete. This pump handles all water used by the plant. To better our high pressure hydraulic system, we are installing a 1000-gallon-per-minute motor-driven hydraulic pump working against a 1100-foot head, and are rearranging our present steam units of 860 gallons per minute capacity.

"All contracts for material used in the water system have been closed, a great deal is here and in place, and we expect to have the system in full operation by the middle of August. We recently installed a 1000-cubic-foot-per-minute air compressor, driven by a 200-horse-power alternating-current motor, which is now in operation.

"Other work, some of which is in progress, and all of which we expect to complete this year, consists of three 452-horse-power waste-heat boilers for the open-hearth furnaces; one 100-ton ladle crane, 260,000 pounds structural steel for extending and reinforcing the open-hearth building, rebuilding two open-hearth furnaces to increase the capacity of each from 45 to 65 tons; pot annealing furnaces to handle 25 tons per 24 hours; one four-block heavy-duty wire-drawing frame, a 90-foot extension to the rod mill warehouse crane runway, and exhaust fans to handle waste gases to stack from blooming mill heating furnaces."

The Cotton Movement.

In his report of June 23, Col. Henry G. Hester, secretary of the New Orleans Cotton Exchange, shows that the amount of cotton brought into sight during 328 days of the season was 12,049,342 bales, a decrease under the same period last year of 3,104,382 bales. The exports were 5,369,198 bales, a decrease of 2,696,529 bales. The takings were, by Northern spinners, 2,828,499 bales, a decrease of 181,654 bales; by Southern spinners, 3,705,931 bales, an increase of 715,287 bales.

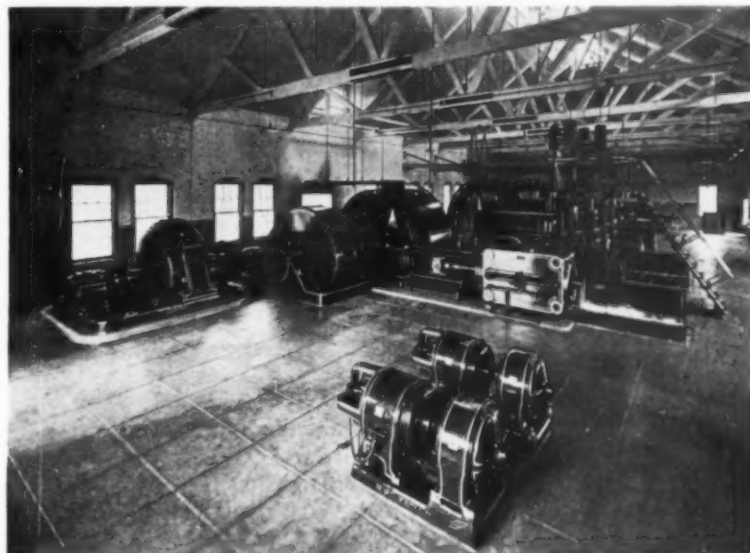
D. D. Little, Marion, S. C., and associates plan a \$625,000 company to build a 25,000 to 40,000-spindle mill at Johnson City, Tenn.

ELECTRIC POWER SUPPLANTS STEAM IN AN ALABAMA IRON MINE.

Tennessee Company's Plant at Red Mountain Includes Distinctive Features.

By H. COLE ESTEP, Engineering Editor Iron Trade Review, Cleveland, O.

In the operation of iron mines in the South, as in the Lake Superior district, the question of power cost is constantly becoming more important owing to the steady increase in the size of plant necessary to mine ore successfully. The economy of electrical energy over steam already has been demonstrated, and as there is plenty of cheap hydro-electric power available in the Birmingham district, it is not surprising that the use of electricity for the operation of mining equipment is making



INTERIOR VIEW OF HOIST AND COMPRESSOR ENGINE-HOUSE, MUSCODA IRON MINES, SLOPE NO. 4.

rapid progress in spite of comparatively low prices for coal.

Up to date the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., a subsidiary of the United States Steel Corporation, has been responsible for practically all of the development in the application of electricity to mining operations in the South. The latest installation to be placed in operation by this company is at Muscoda No. 4 property, in the Red Mountain district, southwest of Birmingham. At this point a large electrically-operated hoist and extensive electrically-driven air compressor equipment have been provided, superseding steam-driven apparatus.

The mine shaft, or slope, as it is called in the South, pierces the side of the mountain at 22 degrees, or 40 per cent. The ore is hauled out in a skip, or car, running on a five-foot-gauge track laid down the slope. Only one track is provided, and the operation, therefore, is unbalanced. The maximum length of haul is 3208 feet, and the skip, which weighs 13,440 pounds, carries 26,880 pounds of ore per trip. The total load, therefore, is 40,320 pounds, or practically 20 net tons, not including the weight of the rope. This load is handled through a reduction gear by an 1800-horse-power three-phase 60-cycle motor, said by the builders, the General Electric Co., Schenectady, N. Y., to be more than twice as large as any other alternating-current hoist motor in the United States.

The motor operates at 356 revolutions per minute under full load, and the rope is wound on a drum 12 feet in diameter at the rate of 2700 feet per minute. The no-load speed of the motor is 360 revolutions per minute. The speed of the drum is 71.5 revolutions per minute. A 1½-inch wire cable is used. The cable weighs 15,840 pounds per side.

Only 15 seconds are allowed for acceleration, eight seconds for retardation and 30 seconds for rest while the skip is being loaded. The hoist is designed to operate from a depth of 5280 feet. When in operation at this depth the motor operates at constant speed for 106 seconds. The skip makes a maximum of 12½ round trips per hour, the hoist being designed for a maximum capacity of 150 gross tons per hour, with an average capacity of 100 tons per hour.

The reversible control equipment includes a primary reversing contactor panel, with mechanically and electrically interlocked magnetically operated triple-pole air-brake contactors, supplemented by a secondary control consisting of a General Electric No. 3 liquid rheostat, complete, with a four-inch pump and five-horse-power 220-volt motor.

The power is transmitted from the motor to the hoisting drum through the Wuest herringbone gear set, manufactured by the Falk Company, Milwaukee, Wis. The gears run in an oil bath and the gear reduction is 5 to 1.

The electrically-driven air-compressor equipment includes two 4200-foot Nordberg compressors, direct connected to 700-horse-power 148-ampere three-phase General Electric constant-speed motors. The motors operate at 80 revolutions per minute, and each unit delivers air at 80 pounds per square inch pressure. The com-

pressors formerly were driven by steam, and in changing over to electric drive the steam cylinders have been removed.

The power, which is purchased from the Alabama Power Co., Birmingham, is delivered to the plant at 44,000 volts, three-phase, 60 cycles. Duplicate transmission lines are provided. Before being delivered to the motors the power is stepped down to 2200 volts by means of transformers.

Freeport Chemical Works' Plans—Will Refine Sulphur from Field at Freeport, Tex.

The MANUFACTURERS RECORD is advised that final plans have been determined for the initial construction of the Freeport (Tex.) Chemical Works, controlled by the San Francisco (Cal.) Chemical Co. P. M. Paulson of San Francisco is the architect, and is about to open proposals for the first building, which will be absolutely fireproof and 100 feet square, costing about \$50,000. Mr. Paulson and J. W. Fay of Freeport are the construction engineers, and they will open machinery bids during July, duplicate proposals being invited at their Freeport and San Francisco offices. The equipment will include furnaces and electric motors for an initial daily production of 50 tons of refined sulphur, flowers of sulphur and rock sulphur. This refinery will obtain its raw product from the Freeport Sulphur Co. Additional units of plant, to increase the annual production to 600,000 tons, are now being installed by the Freeport Sulphur Co.

Automobiles, Tires and Supplies.

Bruno Beaulieu, 128 St. Denis street, Montreal, Canada:

"Let us know if there are any manufacturers of articles pertaining to the automobile trade, such as tires and other accessories. We are already representing two American firms in these articles, and could afford to represent a few more, as demand is very large in these lines."

News and Views from Our Readers

\$17,000,000 Spent and Being Spent on West Virginia Roads.

State of West Virginia,
Railway and Highway Department of the
State University,
Office of State Road Bureau,
A. D. Williams, Chief Road Engineer,
Library Building,

Morgantown, W. Va., June 13.

Editor *Manufacturers Record*:

Please permit me to thank you for your letter of June 8 and the information contained therein.

You will notice that you are receiving a number of notices of bond sales and bond contracts from this State, and it has been the writer's pleasure to recommend to each of the county courts their advertising in the *MANUFACTURERS RECORD*.

When the writer assumed charge of this position and began to organize this department the available funds in West Virginia for road purposes was approximately \$800,000. Since that time there has been voted over \$10,000,000, and about \$2,000,000 will be voted in the next 20 days, besides more than \$5,000,000 that has been raised by levy.

It is doubtful if the people beyond the borders of West Virginia realize what this means to the "Little Mountain State."

The writer appreciates your efforts and co-operation in the development of the road movement.

STATE ROAD BUREAU,

A. D. WILLIAMS, Chief Road Engineer.

The Shipping Public and the Common Carriers

LEROY HALYARD, Traffic Manager, George C. Brown & Co., Memphis, Tenn.

The process of absorption of smaller concerns by large corporations is fully as marked among the railroads as it is among the great manufacturing industries, if not greater.

The growth of mileage of the largest roads is truly phenomenal, and the United States alone in North America, with 186,248 miles of railroad in 1898, surpassed in total mileage that of all the systems in Europe, which at that time amounted to approximately 167,553 miles. The largest aggregation controlled by any one company is that of the New York Central Railway, which controls 10,410 miles, while the Canadian Pacific controls 10,342. Another large transcontinental line of near equal size is the Southern Pacific, which owns and controls over 10,000 miles. Note should be made of four great incorporated common carriers owning and controlling from 7500 to 9500 miles, and nine companies 2500 to 3500 miles of track. The total mileage controlled by 28 companies would be approximately 150,000 miles.

Consideration should be given to the five great transcontinental corporations, the Canadian Pacific and Southern Pacific, with over 10,000 and 9500 miles, respectively, are doubtless the largest. The Atchison, Topeka & Santa Fe comes next, with over 8000 miles; Union Pacific, 5600; the Northern Pacific with 5400 and the Great Northern with 6000 miles of track.

Taking into consideration that only a few of the common carriers are quoted, a full detailed statement cannot be figured other than to show what compensation they receive for their service on the following commodities: Lumber will pay per ton, per mile, 3.2 cents; cotton, 3.9 cents; cottonseed products, 5 cents; coal, 2.1 cents; salt, 2.3 cents; meats, 3.7 cents; grain, 3.2 cents; automobiles, 8.4 cents, and dry goods, 6.1 cents.

A steady increase in freight rates have been published by all carriers for the last four years, until today they are receiving more for their services than any other body for the same amount of capital invested. A very recent rumor is afloat. The Lehigh Valley Rail-

road purchased this year more than 100 new locomotives equipped to draw 65 loaded cars with a crew of five men. The method of handling freight today is far superior to that of 18 years ago, when it required seven men to a crew and could only draw 20 to 25 loads, and the carriers had reasonable freight rates and declared large dividends. It is an evident fact that the management was good. Today some of the best trunk lines in America are in the hands of receivers. Do the carriers need more money to operate, or efficient management? The statistics will show that practically all carriers have received during the last two years large dividends; however, the money was improperly invested. One should read the record of the New York, New Haven & Hartford, Wabash, Rock Island and other large trunk lines that have gone into the hands of receivers.

It is known throughout the United States that the shipping public experienced and suffered more during the past eight months on account of car shortage than ever known before in history. Embargoes were issued by the carriers from the South to the East, making it impossible for the shippers to move their products. The carriers could have overcome 40 per cent. of the shortage of cars had they built the required amount of equipment that is in demand. Again, it is known by all shippers that the carriers have not sufficient freight rolling stock to accommodate their patrons. Taking the grand total of all freight equipment today, the records will show at all times 20 per cent. are in bad order and cannot be handled for transporting freight shipments.

The shippers are in need of more box cars, more flat cars and more rack cars to transport their output. Commerce will be better for the shipper and the carrier.

A good many people of the United States are of the opinion that the carriers are chartered to do commercial business, buy and sell. It will be found that they chartered to serve the public as a common carrier and receive a reasonable compensation for their services. It is true, wholesale prices in the United States as reported by the Bureau of Labor Statistics increased 50 per cent. This increase during the past 15 years, however, is attributed largely to the increased production of gold. The increase will figure more than \$100,000,000 a year. The records will further show that the carriers have received their proportion, due to the various advances in rates allowed by the Interstate Commerce Commission, while other corporations and individuals have not been benefited in proportion.

The dockets of the courts will show that the carriers have had higher freight rates allowed during the past four years than ever known before, and in addition to this a large number of carriers operating in the South own and control sawmills and other interests. Carriers are unable to show where they are in need of more capital, but they cannot show that the public do not need more help from the carriers as to building the required amount of freight equipment to transport their products, which would help the carrier and the shipper. The carriers do not need more revenue.

A Tribute to the Patriotism of State Militia.

W. M. McCROBY Co., General Agents, Royal Exchange Assurance, Jacksonville, Fla.

I note each week with keen interest the editorial columns of your paper.

Every business man in the South should be a subscriber to the *MANUFACTURERS RECORD*, and if he is possessed with the proper amount of pride and ambition for the welfare of the South he surely should lend every co-operation possible to you and your efforts in this connection.

Your article in this week's issue relative to the National Guard is indeed appropriate, and would that every layman would appreciate more the sacrifices made by the officers connected with the militia, as well as the non-commissioned officers and privates, and more especially at this critical period.

When first coming to Florida, having had previous military experience, I entered the militia and was in a short time commissioned captain of infantry, but on account of pressure of business I was forced to resign, and I am in position to know exactly the duties and

business sacrifices which are required of all officers connected therewith, and I hope that the recent call on the militia will stimulate the great issue of preparedness which is of so much importance to the citizens of this country.

I appreciate the privilege of being a subscriber to your paper, both from the valuable information given in my line of business and from the true Southern spirit shown through your editorial columns.

Essentials in Creation of an Atmosphere for Manufactures.

W. N. BERKELEY, Ph.D., Consulting and Analytical Chemist, Annapolis, Md.

The article in the last issue of the *MANUFACTURERS RECORD*, entitled "An Atmosphere for Manufactures Must Be Created in the South," is both a most effective comparative summary of the wealth invested in manufacturing enterprises in certain States of New England and of the South, respectively, and a convincing demonstration of the desirability of increasing manufacturing enterprises in our Southern States.

May I be permitted to suggest some of the conditions that are essential components of an "atmosphere" in which alone manufacturing enterprises can thrive and reach most rapidly their highest state of development?

I don't know that I can better demonstrate the effectiveness of the plan which I shall propose for the creation and maintenance of this "atmosphere," which is absolutely essential to the robust growth of any industrial enterprise, than to direct attention to the history of Southern agriculture during the last two decades.

The farmers of the South began to thrive only after they recognized and acknowledged the truth of three things:

(1) That they could not assume that all material (seed, fertilizer, etc.) sold them was as good as it was said by the dealer to be.

(2) That they could not assume that the methods of cultivation were as efficient and economical as many so-called "practical" farmers said they were.

(3) That they must know accurately what a crop or a cow cost them in order to determine whether the proceeds of the sale of the crop or the cow represented a profit or a loss to them.

Now, what the farmer has done the factory man must do if he hopes to conduct his business in such a manner as to ensure profit in conducting it.

Just as the farmer has found that good business in farming consists today not in extensive acreage, but in intensive cultivation, so the factory man must realize that good business in manufacturing consists not in increased sales, but in increased savings.

All that I could say on this subject can, I think, be summarized in the following business maxims:

(1) There can be no continuing business where there is no continuing profit.

(2) There can be no assurance of profit where there is no accurate knowledge of the cost of producing the article sold.

(3) There can be no maximum profit unless there is a maximum elimination of unnecessary, preventable losses in production.

Such elimination of unnecessary losses come surely and solely when accurate knowledge of material enables a certain decision as to whether it is an equitable exchange for the price paid, and an accurate knowledge of the method employed in transforming it into a merchantable product will show whether this is being done as cheaply as possible.

Recent investigations of the Federal Trade Commission has revealed a most astounding absence of any adequate system of determining accurately the cost of producing material, and without it there is, of course, no rational basis for computing profit.

There are two errors into which manufacturers are most liable to fall, and which bear a vital relation to this important question of computing costs.

The first error is that of regarding an expenditure as necessarily an expense.

Disraeli, one of England's great prime ministers, called attention to this very forcibly when he said: "Economy does not consist in the reckless reduction of estimates.

On the contrary, such a course almost necessarily leads to increased expenditures. There can be no economy where there is no efficiency."

Another source of error is that of regarding the cost of an article as synonymous with its price.

The price of an article, however, if it is to be made into a manufactured article, is the cost of the raw material plus the cost of converting it into a merchantable form, while the cost of an article used in the manufacture of another article (fuel, for instance) is the price plus any additional cost involved in its use. For example, coal with a high percentage of ash costs its price plus the added expense of removing the surplus ash, plus the loss of heat from choked fires, etc.

One of the things essential, then, to the creation and maintenance of an atmosphere favorable to the growth of manufactures in the South is a recognition of the absolute necessity of accurate knowledge of the materials and methods they employ, and a no less clear appreciation of the dependence of this on an adequate system of inspection of both.

The test of the good farmer, of the good factory man, of the good business man, be he farmer or factory man, is one and the same. It is tests.

Increased Rates Required by Railroads for Expansion of Facilities.

CLIFFORD S. ANDERSON, Assistant Counsel Norton Company, Worcester, Mass.

Together with everyone else, we have suffered for the past six months from congested freight conditions and embargoes. By careful attention to routing of our raw materials we have been less affected than many of our customers. On inward shipments we have at times been able to make delivery by some line, although delays have sometimes amounted to three times the ordinary time required for delivery.

Causes for the conditions which have existed are probably not the same in the case of all the roads. The New York, New Haven & Hartford were in worse condition than any of the other roads, and conditions upon that road are not yet normal. We do not think that lack of equipment or general agitation against the railroads are factors in the present condition of traffic on this road.

The Boston & Albany Railroad, by wise use of the embargo, have improved their conditions fairly rapidly.

Our traffic manager informs us that the Boston & Maine Railroad has handled the local conditions in a remarkable manner. He predicts a very troublesome railroad condition in the fall and winter if business continues as at present.

In our opinion, the general increase of facilities on local railroads has been substantially commensurate with the normal increase in local business. The situation has been made difficult by abnormal production stimulated by war orders, either directly or indirectly, and by the extraordinary movement of freight to the Atlantic seaboard, blocked at the coast by inadequate shipping facilities.

We expect this latter condition will be relieved after the war by the availability of more facilities. The probable increase, however, in business during the next eight or ten months cannot be adequately handled by the railroads with their present facilities.

In view of the increase in railroad labor payrolls, we believe that the railroads must be allowed to charge increased rates in order to protect capital which may be employed in furnishing more adequate facilities for the handling of freight.

The Eastern railroads are especially backward in providing adequate freight terminals. Primary attention to this matter, followed by stricter demurrage rules, will lend a large amount of elasticity to the existing situation.

Activities of Lake Charles and Calcasieu Parish

H. B. BAYLISS, Secretary Chamber of Commerce, Lake Charles, La.

Lake Charles, with a population of 17,000, is the parish-seat of Calcasieu parish. The parish has an area of approximately 900,000 acres. Its soil is exceptionally rich in plant food. The largest crop grown is rice, but well proportioned from the diversified farming standpoint and adaptable to this particular section are corn,

oats, lespedeza, Sudan grass; in fact, all forage crops. It has proved to be an ideal truck-growing section, with good production of Irish and sweet potatoes and tomatoes.

Among the fruits, the most abundant grown are Satsuma oranges, grapefruit, lemons, figs, strawberries, peaches and plums. Numerous orchards are devoted to pecans and an increased acreage being devoted to peanuts.

Poultry raising and sheep growing are two industries that are receiving attention, and after an exhaustive experiment, Southwest Louisiana has been proved to be one of the best hog-raising sections in the Southwest, and this has become quite a noteworthy industry.

The great possibilities of cattle raising in Calcasieu parish are fast attracting attention, and magnificent herds of Herefords, Aberdeens and Shorthorns are to be found on the prairie-grazing lands of this Gulf coast country. An ideal stock country is one which produces abundant crops of rich nourishing grasses, pure water and a temperate climate, all of which are to be found in Calcasieu parish.

A 12-year average temperature is recorded by the United States Weather Bureau of 68 degrees, with a rainfall averaging from 50 to 60 inches and quite evenly distributed throughout the year.

Public health is unusually good in Southwest Louisiana and the Gulf coast country, which is a fact of utmost importance and worthy of consideration.

Fish, oysters and shrimp of all kinds are found in the lakes and rivers throughout this section, and it is a hunter's paradise during the open season.

Calcasieu parish has the largest oil-producing fields in the State and the largest sulphur mine in the world, and while Louisiana forests have more cypress and long-leaf yellow pine than any State in the Union, this is the home of the world-famous Calcasieu long-leaf yellow pine timber.

Lake Charles, situated on the shore of the beautiful lake of that name and of the Calcasieu River, is one of the most picturesque cities in the State. It is 30 miles in an air line from the Gulf, and about 43 miles by proposed deep-water channel. It already has access to deep water via Sabine Lake and Sabine Pass. It is on the main line of the Southern Pacific Railway, 219 miles from New Orleans, 145 miles from Houston, Tex. It is the terminus of the St. Louis, Iron Mountain & Southern Railroad, Kansas City Southern Railway, the Lake Charles & Northern and the Lacassine branch of the Southern Pacific.

The city is graced with magnificent public buildings, schools and churches, has electric street railway system, fine sewerage and water-works, with artesian water; light and power plant and gas plant, 11 large wholesale establishments, large department stores, wholesale and retail furniture stores and wholesale and retail agricultural implement and carriage houses.

The school systems of Lake Charles and Calcasieu parish are among the best in the country, and are all well-housed and adequately equipped.

Industrially, large sawmills, brick plants, ship-building plant, fence factories and other manufacturing interests are located here. It is the metropolis of Southwest Louisiana, a manufacturing, jobbing and shipping center with over 100 miles of trade territory, and the great number of sawmills within a radius of 60 miles of Lake Charles make this one of the greatest lumber manufacturing and shipping centers in the country.

The capital invested in Lake Charles manufactures in 1915 was \$8,079,549; value of products, \$6,652,037. Banking resources, \$8,032,376.31; deposits, \$6,604,789.97.

Millions for Construction Operations at San Antonio.

GEO. J. ROARK, Assistant Secretary Chamber of Commerce, San Antonio, Tex.

An estimate of the expenditures made, and to be made, during the year 1916 in San Antonio is \$5,000,000, \$4,000,000 representing the finished and under construction items and those on which plans have been selected.

A new \$100,000 hotel is under construction, and it is known that others are now investigating the hotel field with a view to making investments in that line of property.

The Brown Cracker & Candy Co. has approved plans

for the erection of a \$125,000 plant and a \$15,000 warehouse.

The Maverick-Clark Litho Co. is breaking ground for a \$60,000 home for its business.

The new International & Great Northern roundhouse and the Missouri, Kansas & Texas terminals involve an expenditure of \$2,000,000.

An \$80,000 country club home and miscellaneous building activities will reach \$300,000 to \$400,000 now actually under way.

The Robert B. Green Memorial Hospital will call for an expenditure of \$250,000.

Three new store buildings now under construction are costing \$75,000.

The First Church of Christ, Scientist, recently completed, cost \$55,000.

The Board of Trustees of the City Schools has \$800,000 for school buildings; \$300,000 will be used for the erection and equipment of a new high school. The other \$500,000 will be distributed into permanent buildings in the various school districts of the city.

The main business streets are lined with new buildings and new store fronts. San Antonio, while the oldest city in Texas, has the newest and most modern type of business houses.

More than 30 apartment-houses have been completed during the past 60 days, or are nearing completion. They are of moderate size in the main, but will probably represent a total expenditure of \$210,000.

In addition to the improvements enumerated, there are a number of new residences, and the expenditures for new construction and repairs to the older residences will constitute a considerable sum in the aggregate.

Wants Information About Lumber Waste Uses

SIDNEY LONG, Representative of Samuel Cupples Envelope Co., Birmingham, Ala.

The article in June 15 issue on products made from sawdust was very interesting.

If the articles listed can be manufactured at a cost that will permit them to be made and put on the market at a profit for the manufacturer, it should be a wonderful opportunity for the lumber mills in this section.

I am particularly interested in the process for the making of paper.

If you can furnish any information as to whether any of the articles are being made and sold today I would appreciate your letting me have what you can along this line. Also what company is making the silk hose and what information as to their durability.

[The facts published were based on reports of the United States Forest Products Laboratory, Madison, Wis.—Editor MANUFACTURERS RECORD.]

For Muscle Shoals Development.

R. M. DUDLEY, President Gray & Dudley Hardware Co., Nashville, Tenn.

I was much gratified and not at all surprised to learn through your issue of June 15 that you were supporting vigorously the proposition of building a Government nitrate plant at Muscle Shoals.

The MANUFACTURERS RECORD has done such a great work in developing the resources of the South that I felt assured that you would get behind this enterprise, which means so much to the South, and this section in particular.

I want to thank you for your support in this matter, and to assure you that the business interests of the South are not unmindful of the great work you are doing.

Nitrate of Potash Discovery from Texas.

JAMES N. LE MOND, Manager Real Estate Department, National Exchange Insurance & Trust Co., Waco, Tex.

We believe that we have discovered here in Texas a great mine of nitrate of potash, and I am writing you this to see if you can put me in touch with parties with capital who would be interested in developing a proposition of this character.

We know that we have a large quantity, and are making investigations as rapidly as possible to determine just how much we have. From our present survey we have in sight more than 50,000 tons, and we have only begun to investigate.

Abandoned Ore Tailing Piles Worked Profitably by the Use of Efficient Machinery.

Rush, Ark., June 24—[Special.]—During the past four weeks there has been considerable activity among the mine operators in the North Arkansas zinc and lead field to increase the efficiency of their ore-saving machinery. Many of the mills already constructed that have been without appliances to save all of the fine values are installing tables of the Willfley type. The first big tailing mill to be erected in the field is under construction now at the Big Hurricane mine in Newton county, which is owned and operated by J. C. Shepherd.

It has only been lately that mine operators in this field have taken cognizance of their tailing piles, and of those tailing piles that were made during the operations in the early development of the field. These investigations have resulted in some rather startling disclosures of lost profits, and show to a great extent why some of these properties did not pay a profit when they were operated previous to the present activity.

In an interview with R. W. Russell of Rush, general manager of the Shepherd group of properties, he states that the average metal content of tailing piles in the field, where the ore milled has been carbonate of zinc, will easily go as high as 4 per cent. Some assay returns have run as high as 8 per cent. Everett, Williams and associates, who have lately taken a lease on the Broome county mine in the Dodd City district, investigated the old tailing pile at that mine, that was made years ago, and discovered that it carried a value in zinc of 5.72 per cent. From figures gained by careful measurement in conjunction with this assay they compute the pile to contain 200 tons of high-grade ore that can be recovered, with a value of approximately \$15,000. They have just completed an addition to their concentrating plant that consists of three tables of the Willfley type and one set of 36-inch high-speed rolls, with which they expect to recover this profit lost years ago by former operators of the mine.

A zinc mine in this field from which the dirt will run 5 per cent. is considered a good property, and should pay a good profit under normal conditions if operated economically and the maximum saving of ore values is effected. It can be seen from recent assays of some of these tailing piles that the waste, that value which went over the jigs, was as much as could be expected to be recovered from an average mine.

The tailing piles that are the richest in values are at those mines that have always produced carbonate ores. These ores are far more difficult to separate and to save than jack, because they are lighter, not having as much specific gravity. Consequently the loss has been greater on this class of ore. With proper milling facilities, however, this loss can be cut down to a minimum. The mills where the losses have been shown to have been the heaviest are those that were constructed in the early history of the field, and which were not equipped with any ore-saving devices to catch the fine values. At the time most of these old mills were built it seems that the most efficient methods of saving values was not taken into consideration. All the new mills being constructed are being equipped with devices to save fine values, and the old ones are being remodeled and this kind of machinery being installed.

The tailing mill under construction at the Big Hurricane mine at this time will be the first thoroughly equipped and largest of its kind to be erected in the field. It will have a capacity of 200 tons per 10-hour day, and will cut the loss down from 4 per cent. to 1½ per cent., which is the minimum.

The mechanical equipment of the plant will consist of a Hardinge conical ball mill of 200 tons capacity,

which will pulverize the chats down to a 20-mesh product. This will be the only crushing machinery used in the mill. The fine stuff will be run from this mill into a Dorr thickener 10x30 feet in size. This machine is used in place of the settling tanks, and is much more efficient. It is nothing more nor less than a big round tank with mechanical equipment in it that revolves every 10 minutes and stirs the slime just enough to keep it moving slowly to the tables. The concentrating machinery will consist of 12 tables of the Willfley type and two Dister-Overstrom tables. The mill will contain no elevators. The dirt will be moved to the different departments by water forced by centrifugal pumps. The ball mill which will do the grinding is the first to be installed in the North Arkansas field. It is used in milling operations in the West, where fine values are associated with the rock, and is a very efficient machine on this class of ore.

From figures gained through experiments covering the last two months, Mr. Shepherd expects to make a recovery of from 8 to 10 tons a day over this mill, which will pay a handsome profit on the installation. The old tailing pile at this mine consists of 2500 tons of chats that carry very rich values. After this is milled he will run through all the tailings made by his regular concentrating plant.

The Big Hurricane mine is especially adapted to this type mill, as it is a straight carbonate producer, having



BIG HURRICANE ZINC MINE—ONLY PIT MINE IN NORTH ARKANSAS FIELD.

the largest body of carbonate ore exposed that there is in the field.

The mine lies in an immense break running through a mountain on Big Hurricane Creek. A great gash or pit has been cut into the side of this mountain, parallel with the mountain cutting the ore body. This pit is now 60 feet deep and 150 feet wide, with ore from the grass roots down, in both faces to the bottom. Ore is also exposed in the bottom, the depth of the ore body not having yet been reached. A small opening discovered a short time ago that pitched downward and into the hill at an angle of about 45 degrees, has been explored to a depth of 50 feet. The sides, top and bottom of this opening were found to be crusted with ore, which would indicate that the ore body reaches to a considerable depth. The whole deposit carries a value of approximately 8 per cent. It is crystallized zinc carbonate and lies bedded in the clay and disseminated through the boulders and rock formation.

Coal Production in Alabama in 1915.

Last year the production of coal in Alabama was 14,927,937 short tons, a decrease of 665,485 tons, or 4.3 per cent., over 15,593,422 tons, which was valued at \$19,066,043, in 1915, and \$20,849,919 in 1914, the decrease being \$1,783,876, or 8.6 per cent.

The decline in the coal production in Alabama is attributed to the fact that in ordinary times that State supplies a large amount of coal for the ship bunker

trade of Southern ports, which, because of the European war, has been practically cut off, and furthermore, the development of water-power on a large scale in Alabama has also caused a falling off in the coal consumption. For the first half of 1915 the demand for Alabama coal was light, but in August industrial activity quickened and the general resumption of Alabama's iron furnaces was a large factor in increasing the production of coal for the year, although the total for 1915 was less than any year since 1909.

Production of Gold and Silver in the United States.

The output of gold and silver in the United States, according to the Bureau of the Mint and the Geological Survey, which have issued a joint statement, was as follows for the calendar year 1915:

State or Territory.	Gold.		Silver.	
	Fine ounces.	Value.	Fine ounces.	Value.
Alabama	247	\$5,100		
Alaska	808,346	16,710,000	1,054,634	\$526,100
Arizona	220,392	4,555,900	5,665,672	2,826,500
California	1,690,731	22,547,400	1,689,924	843,100
Colorado	1,089,928	22,530,800	7,199,745	3,591,900
Georgia	1,684	34,800	141	100
Idaho	56,628	1,170,600	13,042,466	6,506,800
Illinois			5,892	1,900
Michigan	240,825	4,978,300	14,423,173	7,195,000
Montana			55,534	27,700
Missouri				
Nevada	574,874	11,883,700	14,453,085	7,210,500
New Mexico	70,632	1,460,100	2,337,064	1,165,900
North Carolina	8,258	170,700	1,496	700
Oregon	90,321	1,867,100	125,499	62,600
Philippine Islands	63,898	1,320,900	15,148	7,600
Porto Rico	34	700		
South Carolina	174	3,600		
South Dakota	358,145	7,405,500	197,569	98,600
Tennessee	329	6,800	96,171	49,500
Texas	87	1,800	724,580	361,500
Utah	189,045	3,907,900	13,973,471	6,522,300
Vermont			150	100
Virginia	24	500		
Washington	22,339	461,600	213,877	106,700
Wyoming	672	13,900	2,910	1,400
Total	4,887,604	\$101,035,700	74,961,075	\$37,397,300

At the average price of silver per fine ounce for the calendar year 1915, \$0.49888.

These figures compare with the production of 1914—\$94,531,800 in gold and 72,455,100 fine ounces of silver, being a gain in the gold production of \$6,503,900 and 2,505,975 fine ounces in the silver product.

To Safeguard the Mississippi Valley from Overflow.

The Chamber of Commerce of Greenville, Miss., is appealing to the country in behalf of the protection of the great valley from overflow, and is sending out a letter, in which it is said:

"The Humphreys Flood Control Bill is now in the hands of the Commerce Committee of the United States Senate (having passed the Lower House by a large majority), and will come before the Senate for final action within the next two or three weeks.

"Inasmuch as the trade in the section of country affected by this bill is as great or greater than our entire export trade to South and Central America, there is no reason why the manufacturers, bankers and business men of the North, East and West should not be appealed to to interest themselves in and support this bill when it comes before the Senate for final action. In fact, we are urged by those supporting this bill to use every effort to arouse the active interest of the country at large in support of this measure.

"Therefore we appeal to you to call upon your bankers to wire or write their correspondents in the North, East and West to support this Flood Control Bill. To appeal to your merchants to call upon the manufacturers throughout the country, to request their Senators to support the Humphreys Flood Control Bill. To appeal to grain, flour and feed merchants to call upon the mill and elevator companies, lumber mills and manufacturers located north of Cairo, Ill., to have their Senators also support the Humphreys Flood Control Bill.

"While we realize and appreciate the active interest taken by those Senators directly interested, still we are advised there are many Senators who show little or no interest in the passage of this very important measure; therefore, it is for the purpose of arousing a direct and active interest in the passage of this bill that we appeal to you to co-operate with those supporting the bill and assist in its passage."

The Iron, Steel and Metal Trades

[Special Dispatch to Manufacturers Record.]

New York, N. Y., June 27.

Tin weaker at 38 3/4 cents to 39 cents; spelter lower at 11 1/8 cents to 11 3/4 cents; other metals unchanged. London cables today quote spot standard copper at £102, futures £90, electrolytic £130, spot tin £171 10s., futures £172 15s., Straits £172 10s., spot lead £29 15s., futures £28 12s. 6d., spot spelter £65, futures £55.

More resale iron is appearing in pig-iron market, which is depressing the market; further sales of warrant iron at Buffalo being made at \$17 for low silicon and \$17.50 for higher silicons; an inquiry in market here for 6000 tons steel-making iron from Spain calling for delivery in 1000-ton lots; a large amount of iron remains under negotiation for Italy and France.

Export Iron and High Ocean Rates—Important Changes in Industrial Officials.

Birmingham, Ala., June 26.—[Special.]—The near future of the Southern iron market depends upon the development of the export trade and the consumption of basic metal. Indications along both lines are such as to justify a reasonable hope of stable conditions during the last half of the year.

The export business depends, of course, upon freight rates. These have been so high as to shut out trade. A New Orleans ship offered \$30 per ton to Genoa. New York ships offered \$1.50 per 100 pounds of iron. Iron-makers wrote back that business could not be considered with a freight rate twice the value of the metal. However, the ice has been recently broken. An order for 3000 tons for Genoa via Savannah at \$28 per ton freight was booked. Two lots of 1000 tons each for Mediterranean delivery have been booked. That this metal went under prices for domestic consumers is doubtless true.

In 1898, 1899 and 1900 the Birmingham district shipped an average of 200,000 to 250,000 tons of iron per annum to Bremen, Antwerp, Glasgow, Liverpool, London, Trieste, Rotterdam and other European ports, at a time when the domestic market was at a very low ebb. At that time Birmingham pig-iron was accepted at a freight rate of \$3.50 per ton from iron yards to delivery on docks at Liverpool. War-time freight rates have been around ten times that rate.

The domestic market is in an uncertain state. A basis for real buying will be fixed when the buying occurs. Scattered sales by furnace interests made recently have been usually around \$15 for spot and forward, with a few lots figuring nearer \$14.75. Quotations are not made under \$15. The Tennessee Company, fortunately, is not a real factor in the foundry market. It is sold well ahead on what foundry it will make and will not cut prices to obtain business. Its business is making basic metal and converting that metal into steel shapes. Its steel mills are running at capacity on double turn.

The diversion of the 400-ton furnace of the Woodward Company to basic iron, effective July 1 for the rest of the year and longer, will also help the foundry trade. This metal has been sold to Eastern interests. The indications of an increased demand for basic and additional stacks going on basic are good.

Warrant iron appears to have done its worst. The consuming trade has had sufficient of it. After yard charges, interest and commissions are figured upon, \$13.50 warrant iron runs up to \$15, and this \$15 is cash rather than a 60 or 90-day note, with the furnace company holding the iron in case a stop order is issued. These facts have gradually soaked into the heads of the consumer, so much so that resale or warrant metal is now recognized as one thing and furnace iron as quite another. However, lots of damage has been done by the hawking of \$13.50 resale metal.

Coal men operating the large mines again complain of a lack of business. This is the old matter of loss of trade territory, inroads by hydro-electricity and over-production. Extraordinary developments at the port of Charleston in the way of coal piers and similar development at ports patronized by Kentucky, Virginia and other coals and backed by railroad interests have seriously cut into the Birmingham district's trade. The Warrior River, Gulf and Latin-American trade has not yet sufficiently developed to offset the loss.

Coke remains very strong, with the leading standard foundry beehive makes selling at \$4.25 to \$4.50. A scarcity of labor, owing to emigration to other fields, which have held out special inducements, hampers the industry.

Water and gaspipe concerns report a disposition on the part of large consumers to hold off, owing to the high price not only of pipe, but of other things connected with pipelaying. However, the aggregate of small orders is considerable. Rather liberal holidays around July 4 will be taken. Sanitary pipe shops report jobbing houses well stocked, and will run on shorter turn.

PIG-IRON.

No. 1 foundry.....	\$15 50 to \$15 75
No. 2 foundry.....	15 00 to 15 25
No. 3 foundry.....	14 50 to 14 75
No. 4 foundry.....	14 25 to 14 50
Gray forge.....	14 00 to 14 25
Basic.....	15 00 to 15 25
Charcoal.....	22 00 to 22 50

OLD MATERIALS.

Old steel axes.....	\$22 00 to \$23 00
Old steel rails.....	11 00 to 11 25
No. 1 steel scrap.....	9 50 to 10 00
No. 1 wrought scrap.....	13 00 to 13 50
No. 1 cast scrap.....	11 00 to 11 50
Extra heavy cast scrap.....	9 50 to 10 00
Stove plate and light cast.....	10 00 to 10 50
Old car wheels.....	10 50 to 11 00
Tram car wheels.....	9 50 to 10 00

F. A. Burr, for 14 years general manager of sales for the Tennessee Coal, Iron & Railroad Co., with headquarters at Birmingham, leaves July 1 to assume charge of the general sales offices of the Aetna Explosives Co. In parting with him the Tennessee Company expressed its regret in terms of the utmost cordiality and regard. Mr. Burr is succeeded by Willard Wilson, who for years has been assistant general sales agent. Mr. Wilson is regarded as eminently fitted for the place.

Walter Newbold Walmsley, who has had years of experience in large structural operations, notably for the past 10 years in South America, has taken charge of the properties of the Alabama Power Co. in Alabama as general manager. He succeeds F. H. Chamberlain, who recently resigned to take charge of a large chemical works in the East.

Although a long time coming to it, Birmingham may now be said to be actually on the way to the Warrior River, from which it is separated only by an air line distance of 10 miles between its navigable waters and the western limits of the city. On June 23 the Jefferson County Board of Revenue voted to issue \$275,000 of 4 1/4 per cent. warrants to build a chert road to Nichols Fish Trap, at the head of navigation on the Locust Fork branch, while they voted also to commence work August 1 upon building another road to the main river at Taylor's Ferry, a distance of 25 miles, the latter work to be done by convicts. The warrants have been financed by the Warrior River committee of the Chamber of Commerce. The Nichols Fish Trap road starts at Ensley, where the Tennessee Company's great steel and iron works are, and goes by Edgewater, Mulga, Bayview and Docena, the four largest mining camps in the district. Besides this, the Fish Trap road leads into Walker county, where 150,000 persons residing in the prosperous mining section toward Cordova and Jasper will be reached and put in close touch with Birmingham. An electric freight and passenger line is to be built along this road. Ultimately it is expected to incorporate the strip of land as far as Nichols Fish Trap and build terminals on the river there. The Taylor's Ferry road will be rather more beneficial to the Bessemer district which it permeates.

Limestones and Marls of the Coastal Plain of Georgia.

This is the title of a very valuable report just issued by Georgia's State Geological Department. The report, which was prepared by Mr. J. E. Brantly, Assistant State Geologist, contains 300 pages, a number of attractive half-tones and a colored map showing the location of many of the most promising limestone outcrops in South Georgia.

The first 43 pages of the report is devoted to the discussion of the physiography, structure and geology of the Coastal Plain. This is followed by a detailed description of the individual properties in the various

counties, which, in turn, is followed by the description of uses of limestones for agricultural and other purposes. In addition, the method of quarrying limestone is fully discussed and the various machines used in preparing the limestone for agricultural purposes are described in detail.

Under the head of the uses of limestone the quantity per acre method of preparing the soil and how and when to apply ground limestone are fully discussed.

An appendix to the report gives a short sketch of the various limestone quarries in North Georgia, giving the capacity of each plant, chemical composition of the material put on the market, etc.

Copies of this report can be secured from Prof. S. W. McCallie, State Geologist, by payment of the postage, 15 cents.

Increased Production of Manganese Ore.

The production of manganese ore in the United States in 1915 was 9651 long tons, the largest since 1901 and more than three times the production in 1914, which was 2335 tons. This output was made by 34 operators in 10 States, of which the four most important, in order of output, were Georgia, California, Virginia and Arkansas, according to figures compiled by the United States Geological Survey. In addition, Alabama, Arizona, Colorado, Tennessee, Texas and Utah produced small amounts of ore. The imports of manganese ore for 1915 were 313,985 tons, which should be compared with 283,294 tons for 1914. Of the ore imported in 1915, 268,786 tons, or 85 per cent. of the total, came from Brazil—more than twice the quantity received from Brazil in any preceding year. The imports from India were 36,450 tons, or about one-fourth the average of the preceding 10 years. No ore was received from Russia.

The production of manganiferous iron and silver ores in 1915 was 798,404 tons, which was almost twice the output in 1914. Most of this ore was used in making high-manganese pig-iron, but a large quantity was used as a flux by lead smelters; 66,530 tons contained more than 15 per cent. manganese and a large part of this was used to make lowgrade ferromanganese.

The quantity of ferromanganese marketed in 1915 was 144,260 tons and the imports were 55,263 tons. The available supply, or 199,523 tons, was greater than that for 1914, but 15 per cent. less than the average for the preceding two years, which covered a period preceding the war in Europe.

The price of ferromanganese rose to \$115 a ton in December, but it is reported that during April, 1916, much higher prices were offered—\$175 a ton for future delivery and \$400 a ton for immediate delivery. The production of spiegeleisen in 1915 was 114,556 tons, which, with the 200 tons imported, represents an increase of 45 per cent. over the available supply for the preceding year. If the increase in the production of steel is considered it becomes apparent that less manganese is now used in the manufacture of steel than formerly, a conclusion that may indicate either that the final product contains less manganese or that ferromanganese is used more efficiently.

The prices offered for manganese ore adapted to the manufacture of ferromanganese rose during 1915 to the highest figures that have been recorded for 30 years. In August, Eastern alloy makers offered \$22.50 a ton for 50 per cent. ore, which should be compared with \$12.50 per ton, the average price for the preceding five years. In March, 1916, it was reported that \$32.50 per ton was paid for such ore. This great rise in prices was due largely to the advance in ocean freights caused by the shortage of vessels in which to move imported ore. There is good reason for expecting a further increase in domestic production during 1916 as a result of the high prices offered, but it is doubtful whether more than 10 per cent. of the domestic demand can be met by domestic production.

The shortage of high-grade manganese dioxide ores caused by cessation of exports from Russia has become a serious menace to the dry battery and flint glass industries. Prices as high as \$85 a ton are freely offered, but as only a few deposits in the United States can supply ore of this grade, little domestic ore has come to the market. There is record of a marketed production of 550 tons from mines in Arizona, California, Colorado, Utah and Virginia during 1915, whereas the annual demand ranges from 20,000 to 25,000 tons. Ore of this grade was imported from Japan and Cuba during 1915,

Amazing Utilization of Pine-Forest Waste

[Special Correspondence Manufacturers Record.]

Madison, Wis., June 23.

The work of Uncle Sam's forest products laboratory, maintained at Madison, Wis., in conjunction with the University of Wisconsin, has so broadened out that there are some 300 experiments and series of tests under way, while hundreds have been completed. The work of the laboratory has so broadened out that it is becoming one of the most vital experiment stations of the Government.

The laboratory is designed to promote efficiency in the lumber industry by reclamation of part of the present waste. An amazing work is being done for the conversion of sawdust and other lumber waste into valuable articles of commerce, especially as to methods of reducing the present print paper famine. Here are some of the lines along which the "sawdust laboratory" is working:

The production of baking powder from sawdust, biscuits being made with this cheap baking powder, a sawdust sugar, instead of the usual tartaric acid baking powder.

The improvement of present methods of conversion of mill waste into artificial silk, America's product of sawdust silk socks being valued at \$5,500,000 in 1915. In addition, the same department of the laboratory is turning sawmill waste into binding twine, rope, woven furniture of the woven willow type, milk bottles, woven matting rugs.

The production of the strongest paper ever made in a simpler manner from the waste of Southern pine. The new process, if used generally, would increase paper production in the South 20,000 tons daily.

Making grain alcohol from the wood waste, with acetic and other standard acids and chemicals.

Not the least important work is that of making wooden houses fireproof by retardant chemicals. Two houses of the size of an average office were erected, one with treated wood, the other with untreated. It was shown that despite an enormous heat the treated building escaped with charring in the face of a temperature of 1000 degrees. Methods of chemically treating wood to make it non-inflammable are being worked on by the laboratory.

Here is a recent series of demonstrations conducted for a delegation of lumber manufacturers on a tour of the laboratory:

How timber is tested for strength.

How wooden packing-boxes are being tested for the National Box Manufacturers' Association.

How timbers are graded for strength.

How wooden shingles burn in comparison with other makes of shingles.

How sodium flouride compares with soda in preventing sap stain.

The destruction of piling by marine borers.

How the bleeding of creosoted paving blocks can be retarded or eliminated.

How wood is creosoted.

How kraft paper is made from long-leaf pine.

How paper is tested.

An exhibit of cloth, twine, rugs, milk bottles, etc., made from wood.

How grain alcohol is made from sawdust.

How wood alcohol is made from wood.

How turpentine, rosin and paper are made from pine stumps.

How Osage orange dye is made and used.

How creosote is analyzed.

How to tell the amount of potash in wood ashes.

How the durability of wood is tested.

How to maintain lumber yards in a sanitary condition.

The effect of resin in Southern pine on its durability. Improved methods in kiln-drying lumber.

How to reduce the shrinking and swelling of wood.

The physical structure of wood as seen in the stereopticon.

How turpentine and resin are formed and improvements in collecting them.

The cost of sawing lumber from small and large logs and the quality of lumber thus obtained.

The effect of turpentine trees upon the quality of lumber produced.

The story of the conversion of sawdust into alcohol at a cost of from 13 to 15 cents, and the relief thereby from the gasoline famine in the automobile industry, is told in scientific form in a survey of the work of the laboratory by the head of the forest service, Henry S. Graves, to show some of the characteristic work of the laboratory.

"It is this industry," says Mr. Graves, "that supplies the country with wood alcohol, acetate of lime and charcoal. It consumes annually over 1,000,000 cords of wood, valued at approximately \$3,150,000, and produces products valued annually at \$10,000,000. Laboratory tests have developed a method, involving practically no outlay for additional apparatus or material and no increase in the time of operation, which has increased the yields of alcohol 25 per cent. and of lime 10 per cent. Universally applied, this would mean an annual increase in value from the raw material of approximately \$1,150,000.

"The waste incident to the production of Southern pine lumber is of sufficient quantity to produce the enormous amount of approximately 20,000 tons of paper per day. Laboratory experiments have determined the suitability of this material for the manufacture of kraft wrapping paper by the sulphite process, and it now only remains to determine to what extent the laboratory results are applicable on a commercial basis."

This kraft product is not only used for wrapping paper, but the same fiber is being worked out in various forms for the manufacture of rugs, furniture, cordage, rope and a vast variety of such articles.

The most extensive use at present is in a substitute for the sisal hemp binding twine for farm work. The kraft fiber is so worked now that it is made into a stout twine, and this twine then used as willow withes for the making of furniture, baskets and the like.

The kraft output is used for matting rugs by weaving like grass mats. Special machinery is required for this kind of work to convert the wood fiber into the proper kind of material for weaving or basketry.

In the laboratory one of the most striking phases of the display of fiber goods is a settee with room for three persons, and this is made, with the exception of wooden legs, from fiber, the cord being woven into back and sides of the settee.

The use of the artificial fiber for silk socks is one of the most extensive uses of the mill waste, according to laboratory authorities.

The laboratory claims no credit for this development, but is working rather to find cheaper substances for the raw material and better processes of manufacture. It is here that the furniture side of the problem touches the laboratory work. Instead of using high-cost woods for the fiber the laboratory is working on the Southern pine waste with a view to its conversion by cheaper methods into the fiber cord, and thus reducing the cost of manufacture.

The development of the sawdust baking powder comes into the realm of the chemistry department. When the wood waste is broken down by distillation it develops large quantities of alcohol, both of the ethyl and methyl groups, and the acetates. The formation of various forms of sugars is another result of the processes, and the baking powder which has been developed is a sugar acid, the nature of which is not being announced pending the experimenting on its production in commercial quantities.

Representatives of various box manufacturers, associations and cannery recently visited Madison to witness tests being made on packing-boxes at the Forest Products Laboratory. The tests already made have shown conclusively that a box 40 per cent. stronger can be constructed at practically no additional cost by slight changes in design. Changes in design have already been adopted by the manufacturers for two types of boxes. These will be presented for adoption by the American Society for Testing Materials at its next meeting in Atlantic City on June 30. They will then

be presented to the Interstate Commerce Commission for experiment.

The visitors present were: Harry McCarthy of J. T. Polk Company, Greenwood, Ind.; B. H. Stevenson of Baltimore, Md.; W. R. Roach of Hart, Mich.; F. F. Wiley of the Naomi Canning Co., Edinburg, Ind.; N. L. Hutto of Sharpsville, Ind.; W. L. Nufer of the Virginia Lumber & Box Co., Petersburg, Va.; H. L. Green of Green Bros. Box & Lumber Co., Rockford, Ill.; W. B. Goodrich of Appomattox, Va.; F. M. Shook of Urbana, O., and F. C. Gifford, secretary of the National Association of Box Manufacturers, Chicago.

These men have expressed themselves as being well repaid for their visit and anxious to assist in establishing specifications based on these tests, thus aiding in a reduction of the \$40,000,000 yearly loss to railroads in the United States now due to poor construction of boxes, for which purpose 4,500,000,000 feet of lumber is now used annually.

TEXTILES

Roanoke Silk Mill Buildings Contract.

The Viscose Company, Marcus Hook, Pa., has awarded contract to Irwin & Leighton, Philadelphia, to construct the buildings for its silk mill at Roanoke, Va. Bailingier & Perrot, Philadelphia, are the architects-engineers, and the plant is to have an initial weekly capacity of 40,000 pounds of artificial silk.

Last week the MANUFACTURERS RECORD announced that the plans and specifications include the following important details: Five-story 153x77-foot building, with columns, floors and roof of reinforced concrete (flat slab construction), rolled steel windows and freight elevator; one-story 536x140-foot building (brick walls and shed construction), with roof of saw-tooth skylights, and cast-iron columns and steel trusses, with plank roof covered by composition roofing; three-story 166x58-foot building of reinforced concrete, flat slab construction similar to five-story structure; two-story-and-basement 154x143-foot and 103x73-foot structures (two) with brick walls and generally of reinforced concrete construction, with composition roofing; 108x70-foot powerhouse, with brick walls and overhead coal bunkers; 191-foot radial brick chimney, 11½ feet inside diameter; 1,077,000-gallon concrete reservoir.

To Manufacture Cotton Linters.

Two plants for manufacturing cotton linters will be built by the Mississippi Hull Fiber Co. of Memphis, Tenn. Its Memphis plant will consist of a frame building with sheet-iron sides and an equipment of machinery for a daily capacity of 25 bales of hull linters. The other plant will be built at Marianna, Ark. This company has organized with a capital stock of \$50,000. Joseph Newburger being president and J. H. McNeil being secretary-treasurer.

\$825,000 Capital for Three Mills.

Three cotton-mill companies have been incorporated by William Elliott, R. P. Herbert and E. W. Mullins of Columbia, S. C., the total capitalization being \$825,000. These companies are the Winnsboro Mills, with \$350,000 capital; the Wateree Mills, with \$300,000 capital, and the Moultrie Mills, with \$175,000 capital.

Textile Notes.

It is reported that the Raeford (N. C.) Power & Manufacturing Co. will add 4000 spindles to its hosiery yarn mill.

R. E. Barnes and C. B. Barnes, Kittrell, N. C., are considering the establishment of a hosiery knitting mill. They want data and prices on the necessary machinery.

Fred D. Noble, George Beveridge and Fred J. Bounds, Cedartown, Ga., have organized the Noble-Beveridge Manufacturing Co. to bleach, dye, water-proof and manufacture khaki. They have purchased the machinery. Later they will add spinning and weaving machinery to manufacture ducking.

RAILROADS

[A complete record of all new railroad building in the South will be found in the Construction Department.]

RAILROADS REACH NEW INDUSTRIES.

Establishment of Barge Transfer and Other Facilities at Chattanooga.

The accompanying illustrations show the barge transfer service of the Nashville, Chattanooga & St. Louis Railway recently established between the Chattanooga side of the Tennessee River and the new industrial section at Moccasin Bend, Tenn.

On this tract, which is separated from the city by the

by a steam locomotive, but they were taken from it at their destination by an electrically-operated work car of the Chattanooga Traction Co.

On the day of the initial trip engineers of the railroad completed work preliminary to laying a track which will reach the various factories at Moccasin Bend. This track will cost, it is said, about \$150,000, including the permanent transfer inclines in connection with which it will be operated, a tugboat and a barge of 12 cars capacity.

C. E. James and associates are among those interested in the real estate side of the Moccasin Bend development.

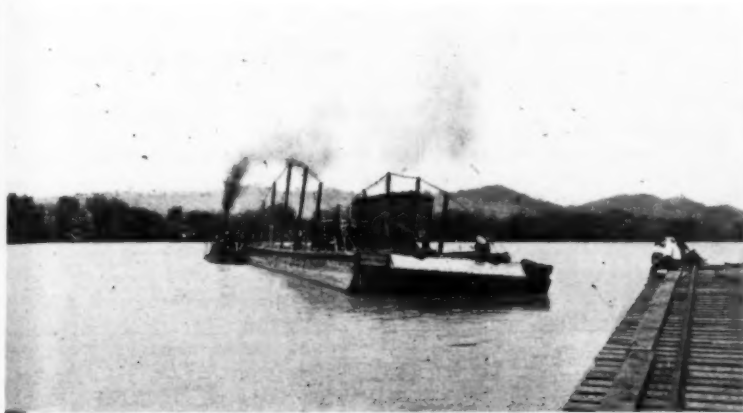
The Queen & Crescent Route is also to reach the new section by building a track from a point near the bridge over which its trains enter Chattanooga. It is about completed.

The tugboat, bought by the Nashville, Chattanooga &

Park from its riverfront properties and the Central of Georgia Railway from Rossville.

Capitalists on an Inspection Trip.

Last Saturday at Charlotte, N. C., a party of capitalists from Providence, R. I., New York and elsewhere began a week's trip over the Norfolk Southern Railroad system, which extends from there to Norfolk, about 400 miles, but also has lines to Aberdeen, Fayetteville, Ashboro, Goldsboro, Newbern, Beaufort, Oriental, Belhaven and Columbia, N. C., Menden and Suffolk, Va., making a total of more than 900 miles of road. They were escorted by President J. A. Young, who, assisted by J. D. Stack, general superintendent, and C. W. Akers, superintendent of the Western division, was host for the occasion. The object of the trip, which was made in a



RAILROAD FERRY ON TENNESSEE RIVER.



TRANSFER TUG "C. E. JAMES."

river, there are already two factories in operation, those of the Chattanooga Stamping & Enameling Co. and the Chattanooga Machinery Co., and there are three other plants in process of construction—the Chattanooga steel mill, the works of the Kalbfleisch Chemical Co. and the Signal Knitting Mill. They will be completed in several months, but their erection demands the transportation of a large amount of building material. The railroad company has existing inclines from its tracks to barges, and although they are nine miles apart, they can be utilized, as here shown, until it can complete a permanent transfer from the Cravens Yards at the foot of Lookout Mountain to the toe of Moccasin Bend, directly opposite, and only three-quarters of a mile away.

The first car to be transferred by barge to the Bend carried 52 tons of steel sheets and a carload of coal for the enameling plant and the vessel was pulled by a powerful tugboat. The cars were placed on the barge

St. Louis Railway for the river transfer, is named after Mr. James. It is 72 feet long, weighs 90,000 pounds, draws 6½ feet of water, and has two marine engines. A steel barge of 12 cars capacity is on the way to Chattanooga, which has three tracks. The barge in temporary use has two tracks and can carry eight cars.

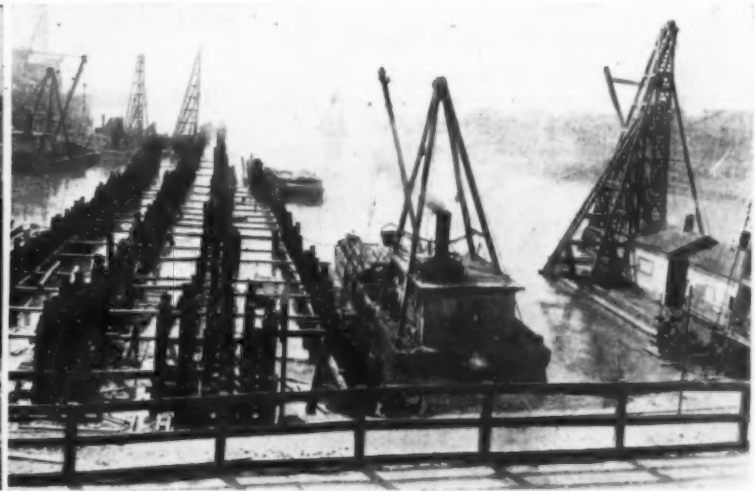
Alton Park, another industrial suburb at the foot of Lookout Mountain, is also the scene of important developments, and is likewise a railroad objective. There were some large industries there before the Chattanooga Gas & Coal Products Co. was established, and this is expanding in the affiliated plant of the Chattanooga Chemical Co., manufacturer of phenol. The Chattanooga Aseptic Cotton Co., producer of cotton for medical and surgical purposes, is building a plant there, having been burned out in another part of the city. It is also reported that another plant allied with Chicago interests will be further increased. The Nashville, Chattanooga & St. Louis Railway has reached Alton

special train, was to afford members of the party, most of whom are financially interested in the road, an opportunity to see the country which it serves and to consider suggestions for the development of its resources. The railroad officials, it is understood, have outlined plans for progressive effort on its behalf, and it is expected that important and far-reaching results will follow the completion of the inspection tour.

Among those in the party were Marsden J. Perry, chairman of the board; B. A. Jackson, H. J. Gross and James Houlihan, all of Providence, the first three being directors of the road; E. C. Duncan of Raleigh, N. C., another member of the board; H. C. Nicholas of Harris, Forbes & Co. of New York, and others.

The diversity of territory and climate along the Norfolk Southern lines is remarkable. In the eastern section of North Carolina, where the lumber industry and the trucking interests are active, the average annual temperature is like that of central Alabama and Mis-

BUILDING REINFORCED CONCRETE COAL PIER FOR PENNSYLVANIA RAILROAD AT BALTIMORE.



The construction of the Pennsylvania Railroad Co.'s new \$1,000,000 concrete coal pier at Baltimore is proceeding rapidly. The illustrations above show a large number of creosoted piles driven and the progress in concrete construction work for the dumper, where the loaded cars will be picked up and turned over, emptying the coal into a hopper. The trestle-work is also shown,

on which will be operated small four-ton cars from the unloader to the pier. On both sides of this trestle traveling unloaders are to be provided, which can be moved to any location desired.

This pier will provide facilities for loading 20,000 tons of coal per day into vessels. It was designed by the Cleveland Dock Engineering Co. of Cleveland, in

conjunction with the engineering department of the Pennsylvania Railroad. Contracts were awarded to the Maryland Dredging & Contracting Co. of Baltimore for dredging work; to the Arthur McMullen Company of New York for construction, and Mead-Morrison Manufacturing Co. of Boston, Mass., for mechanical equipment.

Mississippi, with the consequence that spring crops are gathered early and marketed with corresponding advantage from being soon offered for sale. In the forest, much of which is primeval, are found huge trees of pine and cypress. This timber is being gradually cut and made into lumber, the cleared lands, toward the coast especially, having very deep and rich soil. Farther west on the lines cotton culture becomes more frequent and the yearly average of temperature is a little lower, although the winters are mild and agreeable. When Charlotte is reached the line gets into the Piedmont section, with its particular and enjoyable advantages. Practically all tastes as to country and climate can be satisfied on the line, which, it may be remarked, runs directly to that well and widely known winter resort, Pinehurst, near which is another of like character, Southern Pines.

Railroads and Earnings in 1915.

There are 257,569 miles of railroad in the United States, according to the Interstate Commerce Commission's abstract of statistics of steam railways for the year ended June 30, 1915, which has just been published, and they have equipment consisting of 65,099 locomotives, 55,705 passenger train cars, 2,356,338 freight cars and 95,934 cars, such as work cars and other vehicles devoted to railroad maintenance and not employed for earning revenue. The capitalization of all railroad property is \$19,719,893,944, of which \$8,635,319,368 is stock and \$11,084,574,576 is funded debt. Total railway operating revenues are \$2,956,193,202, and total railway operating expenses \$2,088,682,956. This is \$11,538 and \$8152, respectively, per mile of line operated. The net railway operating revenue for all lines is \$867,510,246. The gross income of all these roads is \$975,827,153, and net income after deductions \$308,378,567. Balance transferred to profit and loss after total of appropriations of net income, \$102,259,206. The aggregate net profit and loss balance is \$876,920,263.

The number of tons of revenue freight carried was 1,802,018,177, a decrease of 174,119,978 tons as compared with 1914; ton mileage was 276,830,302,723, decrease 11,489,587,487; passengers carried 976,303,002, decrease 76,835,116; passenger mileage 32,384,247,563, decrease 2,874,249,946; average number of ton miles of revenue freight per mile 474.45, increase 22.65; average receipts per passenger mile 1.985 cents, increase 0.303 cent; average receipts per ton mile 0.732 cent, decrease 0.001 cent; freight revenue per train mile \$3.46, increase \$0.16.

The investment in railroads (these figures being for only 237,272 miles of road reporting) is \$17,247,101,881, a net increase as compared with 1914 (when 236,556 miles reported) of \$263,155,774. The total investment during the year in new lines and extensions reached the comparatively insignificant figure of \$9,117,141, but the expenditures for additions and betterments was \$254,611,955.

Contract for Export Pier.

H. S. Kerbaugh, Inc., Baltimore and New York, has been awarded the contract for the construction of the Baltimore & Ohio Railroad's new export pier at Locust Point, Baltimore, which will replace the present structure. This contract represents about \$500,000, although the estimated cost of the entire improvement, including dredging and other work, is \$650,000. The pier will be open, 1000 feet long and 150 feet wide, with double tracks extending its entire length and with a single track on one side. Wooden piles will constitute the foundation for the pier, which will have a concrete deck resting on the piles and capable of carrying 1000 pounds per square foot. The average depth of water alongside will be 35 feet. Francis Lee Stuart, chief engineer of the railroad company, will have supervision of the construction. M. A. Long is the architect.

Official Changes on the Seaboard.

G. S. Rains has been appointed freight traffic manager of the Seaboard Air Line at Norfolk to succeed L. E. Chalenor, who resigned to become chairman of the Southeastern Freight Association in Atlanta. Mr.

Rains was general freight agent at Norfolk, which post is now to be filled by the promotion of E. T. Wilcox, assistant general freight agent at Birmingham, and he in turn will be succeeded by R. W. Daniel, who is commercial freight agent at Memphis. C. E. Thomas will now take the latter place and R. B. Taylor becomes soliciting freight agent at Norfolk, succeeding him. These changes take effect July 1.

New Equipment.

Chesapeake & Ohio Railway's recent order for 25 Mallet type locomotives and Seaboard Air Line's order for 5 Mountain type locomotives will be executed at the Richmond (Va.) plant of the American Locomotive Co.

Baltimore & Ohio Railroad has sold \$5,000,000 of 4½ per cent. equipment trust certificates to Kuhn, Loeb & Co. and Speyer & Co. of New York, these covering orders already placed for 3350 cars and 60 locomotives, contracts for which were announced some time ago.

Louisiana & Pacific Railway has ordered a Consolidation locomotive from the Baldwin Works, Philadelphia.

Texas & Pacific Railway is reported in the market for 8 Santa Fe type locomotives. The company has placed its order for 6 mail cars and 2 baggage and mail cars with the American Car & Foundry Co., St. Louis.

Seaboard Air Line has ordered 50 cabooses from the Standard Steel Car Co., Pittsburgh.

Coal Tonnage on the Pennsylvania Road.

The Pennsylvania Railroad reports coal and coke carried over its lines east of Pittsburgh and Erie during May in short tons as follows: Anthracite coal, 957,091 tons, decrease as compared with May of last year 15,904 tons; bituminous coal 3,926,050 tons, increase 532,722 tons; coke, 1,229,440 tons, increase 357,259 tons; total tonnage 6,112,581 tons, increase 874,977 tons.

During the five months' period, from January 1 to May 31, the tonnage was thus: Anthracite coal 4,952,149 tons, increase 371,735 tons; bituminous coal 20,524,490 tons, increase 3,927,416 tons; coke 6,162,191 tons, increase 2,153,748 tons; total tonnage for the five months 31,638,830, increase 6,452,899 tons.

Railroad Committee on Military Movement.

It is announced that the American Railway Association, acting at the request of the Secretary of War, has appointed a special committee, with President Fairfax Harrison of the Southern Railway as chairman, to co-operate with the military authorities concerning the movement of troops, etc. The other members of the committee are A. W. Thompson, third vice-president of the Baltimore & Ohio Railroad; R. H. Aishton, vice-president Chicago & Northwestern Railway, and W. G. Besler, president and general manager of the Central Railroad of New Jersey.

Rock Island Reorganization Committee.

S. Davies Warfield, president of the Continental Trust Co., Baltimore, has been appointed a member of the general reorganization committee of the Chicago, Rock Island & Pacific Railway. Seward Prosser, president of the Bankers' Trust Co., New York, is chairman of the committee, and the other members are James Speyer, Charles Hayden, N. L. Amster and E. K. Boisot. The committee is expected to soon announce an outline of the reorganization plan for the system, of which Jacob M. Dickinson is now receiver.

Baltimore & Ohio Coal Traffic.

The Baltimore & Ohio Railroad carried during May a total of 3,324,188 tons of coal and coke over its lines, an increase of 461,810 tons as compared with the same month of last year. This included 2,967,082 tons of coal, an increase of 402,601 tons, and 357,106 tons of coke, an increase of 59,209 tons. This statement is based on 2000 tons and 2240 pounds per ton as way-billed.

Good Roads and Streets

SOUTHERN HIGHWAY ACTIVITIES.

Record of Week's Progress in Improvements in City and Country.

Details in regard to road and street undertakings and bond issues, briefly mentioned below, are given under the proper headings in our "Construction Department" and "New Securities," published elsewhere in this issue.

Bonds Voted.

Bedford, Va.—Bedford county voted \$75,000 bonds to construct roads.

Benton, Tenn.—Polk county voted \$95,000 bonds to complete nine pike roads, etc.

Birmingham, Ala.—Jefferson county will issue \$275,000 warrants for road construction.

Bonham, Tex.—Fannin county voted \$60,000 bonds to construct roads.

Cedar Bluff, Va.—Town will issue \$6000 bonds to improve Main street.

Hempstead, Tex.—Waller county voted \$25,000 bonds to construct roads, etc.

Houston, Miss.—Chickasaw county will issue \$40,000 bonds for road construction.

Keyser, W. Va.—Mineral county voted \$285,000 bonds for road construction.

Lexington, Va.—Rockbridge county voted \$10,000 bonds for road improvements.

Newkirk, Okla.—Kay county voted \$25,000 bonds to construct roads.

Parkersburg, W. Va.—Wood county voted \$100,000 bonds to construct roads.

Rising Sun, Md.—City will issue \$16,000 bonds for paving, etc.

Stephenville, Tex.—City will issue \$10,000 warrants to improve streets.

Wellsburg, W. Va.—Brooke county voted \$800,000 bonds for road construction.

West Palm Beach, Fla.—Palm Beach county voted \$55,000 bonds to construct 30 miles of road.

Bonds to Be Voted.

Brownsville, Tenn.—City will vote on \$25,000 bonds to improve streets.

Lewisburg, W. Va.—Greenbrier county votes August 5 on \$75,000 bonds to construct road.

Morganton, N. C.—Burke county votes August 17 on \$50,000 bonds to construct roads.

Ooltewah, Tenn.—James county votes August 5 on \$150,000 bonds to improve 85 miles of road.

Sayre, Okla.—Beckham county votes July 12 on \$10,000 bonds to improve roads.

Contracts Awarded.

Bay City, Tex.—Matagorda county awarded contract to improve 42 miles of road; \$100,000 available.

Beaumont, Tex.—Jefferson county awarded contracts aggregating \$175,000 to construct 30 miles of road.

Canton, Miss.—City awarded contract for street paving; \$40,000 expenditure; 5000 yards sheet asphalt paving and four miles of gravel streets with concrete curbs and gutters.

Center, Tex.—City awarded contract for 10 miles of street improvements; \$15,000 available.

Cleveland, Miss.—City awarded contract for 1½ miles of gravel road construction; \$14,000 available.

Fort Worth, Tex.—City awarded \$86,701 paving contract.

Houston, Tex.—City awarded \$35,517 contract to construct roadway to Hermann Park.

Independence, Mo.—Jackson county awarded \$40,817 contract to macadamize roads.

Leesburg, Va.—Loudon county awarded contract for 17,000 square yards of road construction.

Lexington, Ky.—Fayette county awarded \$80,000 contract for 10 miles of Warrenite paved road.

Little Rock, Ark.—City awarded contract for 12 blocks of street paving; expenditure \$37,000.

Louisville, Ky.—Jefferson county awarded contract for 19,900 square yards bituminous asphalt paving.

Lumberport, W. Va.—City awarded contract for 1 1/4 miles of concrete and brick road construction; \$20,000 available.

Memphis, Tenn.—City awarded contract for street paving to cost \$38,000.

Miami, Fla.—City awarded contracts aggregating \$96,000 for paving, grading, etc.

Pontotoc, Miss.—Pontotoc county awarded contract for seven miles of highway; \$28,000 expenditure.

Richmond, Va.—City awarded contract for granolithic curbing and guttering to cost \$15,000.

Sebring, Fla.—City awarded contract for street improvements; 40,000 square yards asphaltic concrete paving and 27,000 linear feet curb and gutter; \$56,000 available.

Staunton, Va.—City awarded contract for 4900 square yards street paving; cost \$12,200.

Wickliffe, Ky.—Ballard county awarded \$38,968.45 contracts for constructing 16.48 miles of road.

Contracts to Be Awarded.

Amite, La.—Tangipahoa parish will construct 20 miles of roads.

Atlanta, Ga.—Fulton county receives bids until July 15 for road construction; 104,000 square yards.

Baltimore, Md.—City receives bids until August 7 to pave street; estimated cost \$21,000.

Charles City, Va.—Charles City county will construct two miles of gravel roads.

Corsicana, Tex.—Navarro county will expend \$280,000 for road construction in Districts 4 and 5; about 61 miles.

Guntersville, Ala.—Marshall county will grade, drain and gravel four miles of road.

Harrisonburg, Va.—City receives bids until July 5 to construct 18,000 square yards vitrified block and asphalt block pavement.

Harrisville, W. Va.—Ritchie county receives bids until July 7 to pave 11 miles of road with brick on concrete foundation.

Hazard, Ky.—City receives bids until July 12 for 21,000 square yards of street paving.

Joplin, Mo.—City will pave street; cost \$25,728.

Newport, Ark.—Jackson county will construct 20 miles of pike road.

North Wilkesboro, N. C.—Town will construct 25,000 square yards sheet asphalt pavement.

Rockville, Md.—Montgomery county receives bids until July 18 to construct 4 1/2 miles of State-aid highway.

Savannah, Tenn.—Hardin county will expend \$100,000 for constructing 110 miles of gravel roads.

Staunton, Va.—City appropriated \$12,500 for street paving.

Taylor, Tex.—City has \$600,000 available for 15 miles of asphaltic concrete and rock asphalt streets.

Texarkana City, Ark.—City has \$240,000 available for street paving; 50 city blocks.

Troy, Ala.—City will construct 17,000 yards of paving.

Versailles, Ky.—City will construct 4000 square yards vitrified brick pavement on concrete base, grade street and construct 1400 linear feet concrete curb.

Wetumpka, Ala.—Elmore county will expend \$17,000 for road construction in four districts.

receive bids on Church district road improvement, aggregating 18 miles, improvement to be made of brick, concrete or asphaltic surface; J. Russell Wilson, Man-nington, engineer in charge.

On July 1 the County Court of Randolph county will receive bids on 22 miles of road construction, surface to be concrete, asphaltic concrete, brick and macadam; P. B. Broomfield, Elkins, W. Va., engineer in charge.

On June 17 the County Court of Ritchie county sold \$240,000 Clay district bonds to Otis & Co., Cleveland, O., at a premium of \$1805, and will advertise for bids on 18 miles of construction as soon as plans and specifications can be prepared; W. D. Britt, Clarksburg, in charge.

The County Court of Wood county has recently sold \$70,000 Tygart district bonds at a premium of \$100 to the local banks in Parkersburg. Work will be done by force account under direction of Burdette Woodyard, county engineer, who has proven himself a master at constructing concrete roads.

The County Court of Roane county sold \$240,000 Spencer district bonds to Harris Forbes & Co., New York, at a premium of \$650 and the blank bonds.

On July 8 the County Court of Greenbrier county will receive bids on \$153,500 Lewisburg district bonds and \$90,000 White Sulphur district bonds.

On July 24 the County Court of Fayette county will receive bids on district bonds; \$600,000 Fayetteville; \$175,000 Falls; \$100,000 Nuttall; \$175,000 Sewell Mountain.

The County Court of Raleigh county has recently sold \$835,000 Shady Spring, Trap Mill, Slab Fork and Town District bonds at a premium of \$10,742.50, and are now preparing to carry out the necessary arrangements to start the construction.

The County Court of Summers county has awarded the contract for eight miles of asphaltic concrete to the Central Engineering Co., Charleston, W. Va.; F. K. Rader, Lewisburg, Phillip J. Konrad, Kanawha Falls, engineers in charge.

The County Court of Hancock county has recently sold \$125,000 Grant district bonds, \$50,000 Poe district bonds, \$40,000 Clay district bonds, and are now having surveys made preparatory to advertising for bids; C. E. Grafton, New Cumberland, engineer in charge.

Logan district, Logan county, has voted \$200,000 5 per cent. serial bonds. F. M. Wilson, county engineer, Logan, W. Va., is making surveys and preparing plans and specifications.

The County Court of Doddridge county has decided to do the work in Grant district under the \$175,000 bond issue by force account, and have employed Arthur Lucas, civil engineer of Morgantown, W. Va., to take charge of the work. The same county has rejected all bids on the West Union district work excepting the bid of Sisor & Morse, who have been awarded the contract for four miles.

The citizens of Lubeck district, Wood county; New Creek district, Mineral County, and Piedmont district, Mineral county, voted on \$385,000 of bonds Saturday, June 24.

Governor Henry D. Hatfield of West Virginia has issued a proclamation setting forth July 18 and 19 as Good Roads days, declaring the same public holidays and requesting all of the citizens of the State to rally to the cause of better roads.

Paving Florida's Rich Town.

Winter Park, Fla., is reported to be the richest town, per capita, not only in Florida, but in the whole country, and it is said to have one of the smallest public debts of any town in the United States. A directory of Winter Park in winter would be a roster of men of national prominence in the business and social world.

William Chase Temple, the mayor of Winter Park, was formerly a resident of Pittsburgh, and when owner of the "Pirates" he donated the famous Temple Cup to stimulate interest in the world series of championship games between the two baseball leagues.

Winter Park is not a popular resort. It is a city of beautiful homes and of exclusiveness.

The beautiful streets of Winter Park have been well kept, but until recently they were not paved. They now are being paved at a rapid rate.

In 1915 the county of Orange, in which Winter Park is situated, constructed an improved type of brick highway from Orlando to the Seminole county line. The pavement was constructed of wire-cut lug brick, accord-

ing to plans and specifications prescribed by G. R. Ramsey, highway engineer.

The practice in Florida had been to build brick roads by laying brick flatwise on a sand foundation and filling the joints with sand. Flush edgings or curbs were used to keep the pavement from sliding laterally. Mr. Ramsey's specifications provided for a puddled, compacted and smoothed natural soil foundation upon which wire-cut lug brick were laid on edge and bonded with a cement-grout filler, which gave a smooth, rigid and durable pavement.

This highway ran through Winter Park, and the service it gave caused residents of that place to adopt similar construction for their streets.

Charles H. Morse of Fairbanks, Morse & Co. was one of the moving spirits. Plans were made for paving several streets, and the work was done under the direction of a prominent citizen, J. A. Merriwether, formerly chief engineer of a big railroad system in the North, who zealously turned his professional skill and public spirit to account as constructing engineer.

The city treasury lacked sufficient funds to pay its one-third share of the cost, so the property-owners shouldered the entire expense. Mr. Morse paved one street at his own expense; Col. Hugh T. Reed, U. S. A. (retired), Edward W. Pachard and Miss Alice Gould contributed to the extent of several thousand dollars on other streets, and other residents came forward promptly.

As a result of this initial enterprise, Interlaken avenue, New England avenue, Pulsifer Circle and Webster avenue, from the intersection of the Sanford-Orlando road through the Winter Park Golf Club grounds to the famous Seminole Inn, were paved with wire-cut lug brick, with curbs and sewer system complete.

This privately done paving amounted to 17,155 square yards and required about 700,000 brick, but according to reports, the work is to go on until Winter Park streets are all similarly paved.

This new type of construction is being generally adopted for Florida. Volusia county has supplemented Orange county's 20 miles of grouted wire-cut lug brick pavement by letting a contract for 26 miles of the same kind of highway in the Deland-Lake Helen district, and other counties are making plans for constructing the same kind.

North Carolina Big Road Meeting.

With over 1000 delegates in attendance, the North Carolina Good Roads Association held the most successful meeting in its history in Wilmington, N. C., last week.

The sessions of the convention extended over two days, and addresses were made not only by those active in road-building matters in the State, but also by men prominent in modern highway work from all parts of the country. Papers were read and discussed upon the construction and maintenance of roads, the use of the State's automobile tax, convict labor and signboards.

Interesting reports were submitted in reference to progress being made in the construction of various through highways in the State, which gave the delegates an opportunity of learning the aggressive work which the people of North Carolina are putting forth to secure a comprehensive system of modern State highways.

\$1,250,000 Highway Bonds Voted.

Bonds to the amount of \$1,250,000 have been voted for the construction of highways in Clay county, Missouri. The County Commissioners, offices at Liberty, will at once arrange for issuing these bonds and contracting for the road improvements. These are planned as to include 202 miles of rock road, which will place every farm in Clay county within reach of a permanent highway.

Steel Wire for Carding Tools.

H. Vaultier & Co., Lisbon, Portugal:

"We have long been in search of steel wire for making carding tools. Aid us in procuring this article, for it will help us out of a difficulty. We are sending by mail, registered, a sample card so that you may learn just what kind of steel wire we desire. We are not able to give American bank references, but we are customers of Chas. A. Schieren & Co., New York, of whom inquiry could be made."

West Virginia Backing Its Faith on Good Roads by Spending Many Millions for Them.

By A. DENNIS WILLIAMS, Chief Road Engineer, Morgantown, W. Va.

That West Virginia is awake to the cause of better roads is evidenced by the amount of funds that have been appropriated and voted during the past two years. On the 20th inst. Brooke county voted a bond issue of \$800,000, bringing the total available funds for road purposes up to more than \$10,000,000 and the total authorized bonds in the State up to \$12,388,500. All of this amount has been voted since November, 1911, and \$11,508,500 has been voted during the past two years.

On June 26 the County Court of Preston county will receive bids on work in Portland and Kingwood districts aggregating 50 miles of improved road; R. R. Feller, Terra Alta, engineer in charge of Portland district, and J. K. Monroe, Kingwood, engineer in charge of the Kingwood district.

On June 29 the County Court of Wetzel county will

Construction Department

IN ORDER TO FOLLOW UP

Properly the Construction Department items, please bear in mind the following statements:

EXPLANATORY

The MANUFACTURERS RECORD seeks to verify the items reported in its Construction Department by full investigation. It is often impossible to do this before the item must be printed or else lose its value as news, and in some items it is found advisable to make statements as "reported" or "rumored," and not as positive information. If our readers will note these points they will see the necessity of the discrimination. We are always glad to have our attention called to errors that may occur.

HOW TO ADDRESS

The name of one or more incorporators of a newly incorporated enterprise should always be written on letter addressed to the official headquarters or to the town of the parties sought, as may be shown in the item. Sometimes a communication merely addressed in the corporate or official name of a newly established company or enterprise cannot be delivered by the postmaster. By following these general directions the post-office will generally be enabled to deliver your mail promptly, although it is inevitable that some failure by the postal authorities to deliver mail to new concerns will occur, as our reports are often published before new companies are known and before they have any established office for the receipt of mail.

WRITE PERSONAL LETTERS

In communicating with individuals and firms reported in these columns a letter written specifically about the matter reported will receive better and quicker attention than a circular. In most instances a return postal card or addressed and stamped envelope should be enclosed with letter.

In correspondence relating to information published in this department, it will be of advantage to all concerned if the Manufacturers Record is mentioned.

DAILY BULLETIN

The Daily Bulletin of the Manufacturers Record is published every business day in order to give the earliest possible news about new industrial, commercial, building, railroad and financial enterprises organized in the South and Southwest. It is invaluable to manufacturers, contractors, engineers and all others who want to get in touch at the earliest moment with new undertakings, or the enlargement of established enterprises. The subscription price is \$25 per year.

All advertising contracts in the Manufacturers Record for three months or longer include a subscription to the Daily Bulletin for the contract period, as well as a subscription to the Manufacturers Record.

BRIDGES, CULVERTS, VIADUCTS

Ala., Gadsden.—City Council of Gadsden, Ala., approved plan to construct bridge across Black Creek on Tuscaloosa St.; concrete; 3 spans; 18-ft. drive; 4-ft. walk; cost \$3000 to \$3500; cost to be divided between Gadsden, Alabama City and Etowah County. (Lately noted.)

Fla., Miami.—Dade County Comms. S. A. Belcher, Chrmn., secured Government permit to construct causeway from Miami across Bay Biscayne to Ocean Beach; length 17,325 ft.; solid construction except at ends; trestles 2000 ft. long; double bascule draw in middle; roadbed of causeway 105 ft. wide; drawbridge and trestle 60 to 65 ft. wide; double trolley tracks, 2 automobile speedways and sidewalk; 7½ ft. above high water; B. H. Klyce, City Engr. (Lately noted to vote on \$500,000 bonds to construct causeway over Biscayne Bay, from Miami to Miami Beach, Isham Randolph & Co., of Chicago and Jacksonville, being engineers.)

Fla., St. Petersburg.—Railway company, being organized by Geo. S. Gandy, Wayne Trust Co. Bldg., Philadelphia, Pa., contemplates erection of bridge 3 to 4 mi. long across Tampa Bay; character subject to Government approval.

Fla., West Palm Beach.—Palm Beach County voted bonds to construct bridge across Lake Worth. Address County Commissioners. (See Road and Street Work.)

Ky., Nicholasville.—Jessamine County Comms. will construct steel and concrete bridges in connection with road construction. (See Road and Street Work.)

Miss., Flora.—Madison County Supvs., Canton, Miss., and Yazoo County Supvs., Yazoo City, Miss., let contract W. T. Young Bridge Co., Nashville, Tenn., at \$8950 to construct bridge across Big Black River; steel; concrete floor and piers; Xavier A. Kramer, Engr., Magnolia, Miss. (Call for bids lately noted.)

Mo., Joplin.—City Comms. will construct bridge over Turkey Creek near Villa Heights; cost \$3500 to \$4000.

Okl., Holdenville.—Hughes County Commissioners contemplate voting on \$50,000 bonds to construct bridge across Canadian River and build roads.

Okl., Oklahoma City.—Oklahoma County Comms. let contract Oklahoma Bridge Co. at total of \$5667 to construct 5 bridges; Kansas City Bridge Co. at total of \$2470, 2 bridges; W. Keeney & Co. at \$1295, 1 bridge; Boardman & Co. at \$4200, 1 bridge; M. Cornelius, County Clerk. (Call for bids lately noted.)

Tenn., Jonesboro.—Washington County Comms. let contract Vincennes (Ind.) Bridge Co., at \$8487 to construct bridge across Nolachucky River. (Noted in April.)

Tex., Hempstead.—Waller County voted \$25,000 bonds to construct bridges and roads. Address County Comms.

Tex., Karnes City.—Karnes County will construct concrete head walls, dips, culverts and bridges in Road Dist. No. 3; bids until July 5; Hess & Skinner, Engrs., Dallas; T. B. Smiley, County Judge. (See Machinery Wanted—Bridge Construction, etc.)

Tex., Wichita Falls.—Wichita County voted \$80,000 bonds to construct 3 bridges—bridge across Wichita River on Electra-Dumdee Road, another across river on Iowa Park-Allendale Road, 8 mi. from Wichita Falls, and 1 at foot of Burnett St. in city. (Noted in May.)

W. Va., Parkersburg.—Kanawha Traction & Electric Co. and Wood County Comms. contemplate constructing bridge above Boaz Stop.

CANNING AND PACKING PLANTS

Ala., Selma.—Selma Packing Plant, capital \$2000, inceptd. by W. N. Brown, Prest.; Claude E. Suttle, V.-P.; Morgan Richards, Secy.-Treas.

Fla., Miami.—W. D. Horne will enlarge packing plant and install additional equipment.

Va., Richmond.—Kings & Co., main office, Indianapolis, Ind., is making addition noted in May; from Richmond advises Manufacturers Record: Erecting 5-floor 92x132-ft. reinforced-concrete fireproof building for cold storage and refrigeration; also beef-killing plant, with chill rooms; facilities to handle sheep, lambs and calves; install two 5-ton machines in refrigerating plant; contracts for buildings and machinery nearly all let; upon completion of addition pack-

ing plant will have daily capacity 1000 hogs, 100 cattle and 200 small stock.

CLAYWORKING PLANTS

Fla., Pensacola.—Turpentine Cups.—Gulf Cup & Still Co., manufacturers of seamless turpentine stills, etc., will add manufacture of clay turpentine cups; also build 2 down draft kilns about 22 in. diam. (See Machinery Wanted—Clayworking Equipment.)

Okl., Tulsa.—Brick and Tile.—United Brick & Tile Co., capital \$100,000, inceptd. by John D. Richards, W. D. Abbott and F. A. Peek. Va., Glasgow.—Bricks, Tile, etc.—Glasgow Clay Products Co., \$199,000 capital, organized; C. H. Locher, Prest.; H. O. Locher, Secy.-Treas.; build plant to manufacture bricks, fireproofing blocks, etc., and to mine silica, kaolin and oolite; has ordered machinery; electric power; transmission from local North-James Rivers hydro-electric plant developing 3000 H. P.; offices at Glasgow and 129 Broadway, New York. (Chas. H. Locher recently noted to build plant.)

COAL MINES AND COKE OVENS

Ala., Birmingham.—Northern Kentucky Coal Mining Co., 2005 Jefferson County Bank Bldg., will hold meeting July 22 to consider issuing \$100,000 additional preferred stock.

Ky., Fleming.—Elk Horn By-Product Co. organized; Lewis E. Harvie, Prest.; Perry F. Gorman, V.-P. and Mgr.; Sam Collins, Secy.-Treas.; will develop 100 acres coal land; daily output, 500 tons. (Lately noted inceptd. with \$20,000 capital.)

Va., Big Stone Gap.—Intermont Coal & Iron Corp., R. T. Irvine, Prest., will develop 870 acres coal land; add 20 ovens to present plant of 80 beehive coke ovens; later construct 50 additional ovens. (See Iron & Steel Plants.)

W. Va., Elkins.—Intermountain Coal & Lumber Co., capital \$500,000, inceptd. by N. I. Hall, D. V. Myers, D. L. Strock and others. Address Chas. S. Babb, 816 Connecticut Ave., Washington, D. C.

W. Va., Page.—Loup Creek Colliery Co. will rebuild coal tipple reported burned.

COTTON COMPRESSES AND GINS

Ark., Rison.—Farmers' Gin & Seed Co., capital \$10,000, organized with C. K. Elliott, Prest.; A. B. Robertson, Secy.-Treas.

Ark., Helena.—Helena Compress Co., capital \$50,000, inceptd. by W. N. Straub, Lee Pendergrass, S. H. Swenson and others.

Ark., Jonesboro.—Independent Gin Co., capital \$8900, inceptd. by Wm. Craddock, Prest.; J. L. Magers, Mgr.; will install cotton gin.

Ark., Little Rock.—Farmers' Gin Co., capital \$15,000, inceptd. by W. N. and A. W. Godbey, A. G. Kahn and S. K. Godsbey.

Ark., Rison.—Farmers' Gin & Seed Co., capital \$10,000, inceptd. by C. K. Elliott, H. N. Roberts, E. A. McMurtrey and others.

La., Plaquemine.—People's Gin Co. organized with A. H. Lemoine, Prest.; build cotton gin.

N. C., Raeford.—Austin Gin Co., capital \$50,000, inceptd. by J. H. Austin and others.

S. C., Alley.—H. V. Thompson & Bro. will install cotton gin. (See Flour, Feed and Meal Mills.)

S. C., Brunson.—L. B. Tuten Gin Co., capital \$2000, inceptd. by L. B. Tuten, R. G. Addison, A. W. Brabham and H. C. Williams.

Tex., Geronimo.—Farmers' Union Gin Co. increased capital from \$10,000 to \$16,000.

COTTONSEED-OIL MILLS

Tenn., Memphis.—Crescent Cotton Oil Co. will build seed house; install additional new machinery for conveying and transmission; let building foundation contract to John R. Miller Co., Memphis; has not ordered machinery; total cost \$12,000; plans by E. B. Van Keuren, Engr., Jefferson Bank Bldg., Birmingham, Ala. (Superseded recent item.)

Tex., Dallas.—Alston Boyd of Crescent Cotton Oil Co., Memphis, Tenn., and others will build \$150,000 plant; install 6 presses with daily capacity 100 tons cottonseed; add equipment to mix feed and to bleach lint for paper pulp; W. S. Fontaine, Mgr., Dallas; E. B. Van Keuren, Engr., Jefferson Bank Bldg., Birmingham, Ala. Mr. Boyd advises Manufacturers Record: Plans not completed; cannot give details at this time.

Tex., Sherman.—Sherman Oil Mill advising Manufacturers Record: Will install additional new machinery; purchased this equipment. (Lately noted increasing capital from \$100,000 to \$150,000.)

DRAINAGE SYSTEMS

Ark., Helena.—Indian Bay Levee & Drainage Dist., Phillips County, will drain 125,000 acres for agriculture; plans include 40 mi. standard levee, drainage canals, pumping plants, bridges, gates and culverts; cost estimated at \$250,000 for canals and \$2,000,000 for levees; Walter E. Winn, Helena (Ch. Engr., Winn Engineering Co., 516 Solomon Bldg., Helena), appointed by County Court for preliminary surveys, plans, estimates and report.

N. C., Bolton.—Columbus County Drainage Dist. No. 2, F. L. Finkenstaedt, Chrmn. of Comms., advises Manufacturers Record: Complete system by Oct. 1; drain 29,000 acres; excavate 1,500,000 cu. yds. earth; main canal and 9 laterals 42 mi. long, 7 ft. deep to bottom width of 30 ft. and 9 ft. deep; 42 mi. of road, 16 mi. wide, on ditch bank; eleven 30-ft. bridges and three 50-ft. bridges; land within district owned largely by Wacnamaw Lumber Co. and North Carolina Co.; construction by floating dipper dredges; W. Worth Bean, Jr., Supt.; construction by Mr. Finkenstaedt as trustee, it having been found desirable to take over contract from engineering company to which it was previously awarded; construction progressing. (Previously noted.)

Fla., Bunnell.—Bunnell Development Co. plans organization of district to drain its property in St. Johns and Volusia counties.

S. C., Charleston.—Combabe Corp., C. J. Bendt, Secy.-Treas., Consolidated Company Bldg., will construct drainage system; build 60/10 mi. levee with total yardage 190,000 and 6 mi. open ditch with total yardage 80,000; install pumping plant to include 2 units, each composed of internal combustion engine with pump and other machinery; 2 units to have capacity 35,000 gals. per min. at static head 3 ft.; bids until July 26 on levee and ditch construction combined or on each separately; also for pumping units; plans, specifications, etc., on file in office of company; of F. G. Eason, U. S. Drainage Engr., P. O. Bldg., Charleston, and of C. W. Okey, U. S. Drainage Engr., Tulane University, New Orleans. (See Machinery Wanted—Drainage System.)

S. C., Yemassee.—Buckfield Stock Farms will construct several drainage canals, involving total of 150,000 cu. yds. excavation; excavation with dredge that spans ditch; maximum bottom width 20 ft.; maximum depth 6 ft.; side slopes ½ to 1; bids invited. (See Machinery Wanted—Dredging.)

ELECTRIC PLANTS

Ark., Marmaduke.—Marvell Electric Light & Power Co., capital \$15,000, inceptd. by A. Bertig, S. Bertig, J. R. Bertig and B. G. Brinkman.

Fla., Plant City.—City plans to construct combined electric light and pumping plant; H. S. Jaudon Engineering Co., Savannah Bank & Trust Bldg., Savannah, Ga.; submitted estimate of cost as follows: Brick building \$18,000; 2 steam engines of from 350 to 400 H. P. each; two 150 H. P. boilers; 2 generators of 150 K. W. each; pumping station, installation, etc.; total cost \$91,000.

Fla., Tarpon Springs.—City will vote upon issuing bonds to buy Southern Utilities Co. electric-light plant or to install new municipal electric-light system. Address The Mayor. (Lately noted as contemplating to construct electric-light system.)

Ga., Cochran.—City voted \$20,000 bonds to extend electric light system, etc.; J. C. Cruikshank, Mayor; lately noted to have plans by Wm. M. Crook, Engr., 614 Grand Bldg., Macon, Ga. (See Sewer Construction.)

Ga., Cordele.—City votes Aug. 3 on \$50,000 bonds to build electric-light and power plant; J. N. King, Chrmn. Finance Committee. (Lately noted.)

Ky., Earlington.—City is considering plans for installation of electric light plant; cost \$20,000. Address The Mayor.

Md., Baltimore.—United Railways & Electric Co., Continental Bldg., has plans by Francis E. Tormey, Gunther Bldg., Baltimore, for transformer station to be erected

on Belvedere Ave., near Electric Park; brick or reinforced concrete; 1 story; 71x40 ft.; following invited to estimate: J. Henry Miller, Inc., Entaw and Franklin Sts.; Consolidated Engineering Co., Calvert Bldg.; West Construction Co., Knickerbocker Bldg.; R. B. Mason, 308 W. Madison St.; Monmonier & Sorrell, 1711 McCulloch St.; Lackie & Todd, 1125 Munsey Bldg.; Singer Pentz Co., 600 Equitable Bldg.; all of Baltimore.

Md., St. Michaels.—City will issue \$800 bonds to build electric light and power plant. Address The Mayor. (Noted in April.)

Mn., St. Joseph.—City contemplates voting on \$75,000 bonds, of which \$85,000 is to be expended for rebuilding electric-light plant. Address The Mayor.

Mo., Bonne Terre.—Light & Development Co. of St. Louis will acquire electric-light system in St. Joe mining district owned by Bonne Terre Farming & Cattle Co., which supplies electricity in Bonne Terre and Flat River; plans to enlarge plant and supply electricity to all surrounding territory, in which several mining districts are located.

Okla., Blanchard.—City contemplates constructing electric light and water works system. Address The Mayor.

Okla., Bromide.—City contemplates constructing electric light system and water works. Address The Mayor.

Okla., Canadian.—City voted franchise for electric light plant. Address The Mayor.

Okla., Chattanooga.—A. A. Pyle will install electric light and power plant.

Okla., Dewar.—Henryetta Electric Light Co. will install electric light plant.

Okla., Milburn.—City voted against issuance \$8000 bonds to construct electric light system. (Lately noted to vote.)

Okla., Stroud.—City will vote on \$30,000 bonds to improve electric light plant, water works and sewer system; Benham Engineering Co., Engr., Oklahoma City.

Tex., El Paso.—El Paso Electric Rwy. Co. will install all overhead lighting and power wires in business district in underground conduits; cost \$25,000.

FERTILIZER FACTORIES

Fla., Miami.—Florida Disposal Co., capital \$60,000, incptd.; W. H. Vreeland, Pres.; L. C. Harghey, V.-P.; Chas. B. Grimes, Secy.; Jos. J. Mooney, Treas.; J. B. Dill, Mgr.

Miss., Okolona.—Prison Trustees, Jackson, Miss., purchased 80-acre site on which to build lime-rock crushing plant; will establish similar plant in South Mississippi, location not decided; crush limestone for fertilizer.

Va., Richmond.—Old Buck Guano Co. increased capital from \$25,000 to \$50,000.

FLOUR, FEED AND MEAL MILLS

Ark., Alma.—J. A. Coleman contemplates installing flour mill.

S. C., Alley.—H. V. Thompson & Bro. will construct (day labor) 57x20, 2x12, 30x18 and 30x28-ft. ordinary buildings; install machinery for feed, meal, lumber and shingle mills and cotton gin; Liddell Co., Engr., Charlotte, N. C.

Tenn., Memphis.—Centennial Mill Co., of Seattle, Wash. (represented by W. H. Burt, now registered at Hotel Gayoso, Memphis), is reported to establish flour distributing station, including mixing plant with daily capacity 800 bbls.; manufacture patent self-rising flour.

Tenn., Pigeon Forge, Railroad Station, Sevierville.—Pigeon Forge Milling Co., capital \$10,000, incptd. by J. W. Wynn, A. G. Stott, A. F. Stott and others.

Tex., Dallas.—Alston Boyd, Memphis, Tenn., and others will install equipment to mix feed in connection with \$150,000 cotton-oil mill. (See Cottonseed-Oil Mill.)

Va., Roanoke.—J. W. Ring, (of Modern Mills, Inc., Johnson City, Tenn.) and others has site 40x100 ft.; on which to build flour mill; brick, steel and concrete construction.

FOUNDRY AND MACHINE PLANTS

N. C., Asheville.—Cone Machines.—Turnbull Cone Machine Co., capital \$40,000, incorporated by W. W. Turnbull, M. L. Turnbull and T. J. Harkins; build machines for manufacturing cones.

Okla., Devol.—Deep Red Valley Threshing Machine Co., lately noted incptd., will not manufacture threshing machines; is corporation of farmers for grain threshing.

Tenn., Harriman.—Farming Implement.—Wester Hook & Hoe Co., organized with W. C. Anderson, Pres.; Geo. W. Wester, V.-P.; J. A. Manley, Secy.-Treas.; Geo. W. Chandler, Gen. Mgr.

Tenn., Memphis.—Iron Foundry.—Southern Iron & Metal Co., capital \$300, incptd. by L. Nord, B. Singer, Lee Rome and others.

Tex., Dallas.—Tractor.—Deep Tillage Tractor Co., capital \$10,000, incptd. by Bennett W. Reed, R. B. George and S. B. Canter.

Va., Newport News.—Foundry.—J. W. Hoopes, 335 27th St., will establish shop for general repairing, ornamental and structural steel; machinery is supplied for present use. (See Machinery Wanted—Air Compressor; Pipe; Sprinkler Systems; Punch and Shears.)

Va., Richmond.—Forge Plant.—Richmond Forgings Corp. increased capital from \$30,000 to \$50,000; provide additional facilities to manufacture axles, cranks, gears, etc., for automobiles and other manufacturers.

Va., Richmond.—Machine Shops.—W. S. Forbes & Co. will repair machine shop; cost \$25,000.

W. Va., Parkersburg.—Boilers.—Donovan Boiler Works let contract Frank Townsend for improvements to plant; erect brick building to cost \$2000; also contemplates other improvements.

GAS AND OIL ENTERPRISES

La., Breaux Bridge.—Old Rip Petroleum Co., capital \$75,000, organized with S. B. Forman, V.-P. and Gen. Mgr.; A. G. Broussard, 2d V.-P.; J. G. Broussard, Secy.-Treas.; controls 1000 acres.

La., Lake Charles.—Calcasieu River Oil Co., J. McK. Cross, Secy.-Treas. (lately noted incptd., capital \$10,000), has building and derrick under contract; will expend \$18,000 to \$20,000 on machinery, pipe and drilling; open bids in Sept. (See Machinery Wanted—Well Drilling Equipment.)

Okla., Bartlesville.—Brazos Oil & Gas Co., capital \$25,000, incptd. by Frank Bucher, W. H. Byron, E. T. Smith and Nevlin Campbell.

Okla., Berwyn.—Berwyn Petroleum Co., capital \$25,000, incptd. by A. W. Gaines, G. A. Brock and W. R. Brock.

Okla., Berwyn.—Finance Oil & Gas Co., capital \$100,000, incptd. by A. W. Gaines, G. A. Brock and W. R. Brock.

Okla., Blackwell.—Fulton Oil Co., capital \$30,000, incptd. by G. N. Dance and others.

Okla., Brame.—Weesner Royalty Co., capital \$30,000, incptd. by H. C. Scott and C. Wood, of Brame, and W. E. Marshall, of Wichita, Kans.

Okla., Newkirk.—Gaspipe Line.—City, C. S. Miller, Mayor, lately noted voting \$250,000 bonds to construct gas-pipe line, contemplated 13 mi. of 8-in. pipe to furnish gas for industries, etc.

Okla., Oklahoma City.—Almez Oil Co., capital \$15,000, incptd. by Jas. S. Twyford, W. M. Shaver, H. B. and Geo. Houghton.

Okla., Sallisaw.—Seven Oaks Oil & Gas Co., capital \$10,000, incptd. by Sam A. McKeel and others.

Okla., Sapulpa.—Waxahoma Oil & Gas Co., capital \$25,000, incptd. by J. E. Richardson and W. H. Martin of Sapulpa and John P. Cooper of Italy, Tex.

Okla., Sapulpa.—Paramount Oil & Gas Co., capital \$25,000, incptd. by R. Steinhart, W. H. Brown and Barton LaFant.

Okla., Sapulpa.—Myrtle Oil Co., capital \$15,000, incptd. by V. R. Bryan and others.

Tex., Hamlin.—Hamlin Oil & Development Co., capital \$30,000, incptd. by A. H. Woodfin, A. L. Houston and E. C. Brand.

Tex., Houston.—Oil Refinery.—Petroleum Refining Co., capitalization \$50,000 to \$1,000,000, chartered; will build oil refinery on Houston ship channel; J. S. Cullinan, Pres.

Tex., Houston.—Imperial Oil Co., capital \$40,000, incptd. by G. S. Northup and others.

Tex., Humble.—Humble-Austin Oil & Gas Co., capital \$15,000, incptd. by G. J. Johnston, A. B. Johnston and Geo. H. Cooke.

Tex., Humble.—Hansbro Oil & Gas Co., capital \$12,000, incptd. by Thos. S. Falvey, Jeff Cochran and Jerry C. Falvey.

Tex., Kingsville.—Kingsville Oil Development Co., capital \$40,000, incptd. by J. D. Finnigan and others.

Tex., Mart.—Pipe Line.—Mart Pipe Line Co., capital \$25,000, incptd. by J. E. Earle, Chas. A. Maroney and J. Lee Harlan.

West Virginia.—Oil Pipe Lines, etc.—Omar Oil & Gas Co., capitalization \$5,000,000, incptd.; acquired lands or leases exceeding 1000 acres in Kanawha, Marion, Roane and

Lincoln counties, W. Va.; McCreary County, Ky.; Coshocton, Washington and Knox counties, Ohio; Converse and Rawlins counties, Wyo.; control of Wyoming & Texas Oil & Gas Co.; has 12 producing wells; will drill 4 additional wells; Noah P. Clark, Pres.; Thos. M. Clark, V.-P.; John B. Fritz, Secy.-Treas.; offices, Benedum Trees Bldg., Pittsburgh, Pa.

HYDRO-ELECTRIC PLANTS

Va., Narrows.—Narrows Light & Power Co. plans developing 1500 to 3500 H. P. at Narrows Falls on New River; K. S. French wires Manufacturers Record; Power house 80x50 ft.; dam 500 ft. long; construction of concrete and stone; B. F. Groff, Engr., 556 Woolworth Bldg., Lancaster, Pa. (Lately noted asking Congress for permission to dam river.)

ICE AND COLD-STORAGE PLANTS

Fla., Ruskin.—E. E. Robinson, Box 65, may install ice plant. (See Machinery Wanted—Ice Plant Equipment.)

Ga., Cochran.—City voted \$30,000 bonds build ice and cold-storage plant, etc.; J. C. Ughart, Mayor. (See Sewer Construction.)

Tex., San Benito.—S. & S. Plantation plans to install ice factory. (See Machinery Wanted—Ice Plant.)

Va., Richmond.—Kingan & Co., Indianapolis, Ind., will erect additional cold-storage and refrigeration plant, etc., and install two 50-ton refrigerating machines. (See Canning and Packing Plants.)

IRON AND STEEL PLANTS

Ala., Anniston.—Iron Furnace.—Woodstock Operating Corp. repairing properties of Woodstock Iron & Steel Corp., J. B. Carrington, Pres.; preparing to blow in Anniston furnace, leased by first-named company; not prepared to state further details. (Noted in April.)

Ga., Atlanta.—Steel Plant.—Atlantic Steel Co., C. A. Cowles, Jr., Ch. Engr., completed and has plans for general improvements, in progress, costing \$200,000; contracted for all materials; Mr. Cowles outlines portion of improvements as follows: Rebuild 2 open-hearth furnaces, increasing daily capacity from 45 to 65 tons; install pot annealing furnaces with 24-hour capacity 25 tons; install 4 block heavy-duty wire-drawing frame; extend and reinforce open-hearth build-up, using 200,000 tons structural steel; extend rod mill warehouse crane runway 90 ft.; install exhaust fans for waste gases from blooming mill heating furnaces to stack, etc. See Water-works. (Noted in March as to undertake improvements.)

Tenn., Allens Creek.—Iron Furnace.—Bon Air Coal & Iron Co., Robt. Vaughn, receiver, Stahlman Bldg., Nashville, now has furnace operating at full capacity; high silicon iron 5 to 10 per cent. (Lately noted as blowing in furnace.)

Va., Big Stone Gap.—Iron Furnace, etc.—Intermont Coal & Iron Corp., capitalization \$500,000, chartered; R. T. Irvine, Pres.; J. W. Kelly, Secy.; both of Big Stone Gap; L. M. Williams, V.-P. (of John L. Williams & Sons, Richmond, Va.); Mr. Irvine advises Manufacturers Record: On July 1 acquire following: Union Iron & Steel Co.'s 2 iron furnace stacks, 45 acres land, etc.; Intermont Coal & Iron Co.'s Josephine plant, including 60 acres coal land, mining equipment, 80 beehive coke ovens, etc.; Kelly & Irvine's iron ore holdings in Lee and Wise counties; limestone properties; will reconstruct and modernize furnace to daily capacity 150 tons pig-iron; resume coal mining, add 9 coke ovens and later construct 50 additional ovens; resume iron mining with daily capacity 300 to 400 tons; besides purchases, Intermont will develop 200-acre coal land lease from Virginia Coal & Iron Co. and iron ore land leases in Wildcat Valley section; M. H. Maury, Anniston, Ala., in charge reconstruction of plant.

LUMBER MANUFACTURING

Ala., Clanton.—Jackson Lumber Co. will hold meeting July 10 to consider increase in capital from \$150,000 to \$500,000.

Ala., Magazine Point.—H. S. Best, Mobile, Ala., will build saw mill at Magazine Point to manufacture cigar box wood from Tupelo gum; let contract L. Moore Dry Kiln Co., Jacksonville, Fla., for 3 kilns with total drying capacity of 60,000 ft.

Ala., Fort Payne.—Pine States Lumber Co., organized; C. B. Ovental advises Manufacturers Record: H. B. Brock, Pres., Fort Payne; C. B. Ovental, V.-P., Valley Head, Ala.; J. P. Wardlaw, Secy.-Treas.-Mgr., Fort Payne; build sizing mill costing \$300, (lately noted incptd.)

Ark., Arzenta.—McLean Arkansas Lumber Co., capitalization \$300,000, incptd. as branch of Hugh McLean Lumber Co., Buffalo, N. Y.; has 15-acre site; build mill with 14-in. capacity 40,000 ft. hardwood lumber, including quartered white oak; purchased machinery. (McLean Hardwood Lumber Co., Buffalo, N. Y., lately noted to build mill.)

Ark., Horatio.—J. F. Bretz will rebuild burned saw mill.

Ark., Warren.—Southern Lumber Co. is having plans and specifications prepared for additional unit to saw mill; daily capacity 125,000 ft.; J. W. Kyle, Contr., is erecting battery of brick kilns. (Noted in April.)

Fla., Eastport.—Carpenter.—O'Brien Co., Jacksonville and Eastport, writes to Manufacturers Record: Do not anticipate starting construction on second unit for several months; in fact, not definitely decided that it will be built. (Lately reported as to double daily capacity of 300,000 to 400,000 ft. lumber; build additions to include twin saw mills, planing mill, central power plant, pulp and paper mills, sorting shed, storage shed, loading docks, etc.)

Ga., Atlanta.—Hardwood Timber Co., capital \$100, incptd. by John Kelly, John Wiley and P. B. Barringer.

Ga., Waycross.—Lewis Mfg. Co. purchased rights to pine-timber acreage; will build mill.

La., Clarks.—Louisiana Central Lumber Co. is reported to remodel plant; having plans prepared.

Md., Baltimore.—Tropical Lumber Co., authorized capital \$500,000, chartered by John J. Duffy, Mgr. of Lafayette Mill & Lumber Co., 2100 W. Lafayette Ave., and others.

Md., Baltimore.—Paper Pulp.—Tropical Lumber & Pulp Co., capitalization \$500,000, incptd., to develop 124,000 acres timber in Dutch Guiana; future plans include probability of building paper pulp mill on water front; John J. Duffy (Gen. Mgr., Lafayette Mill & Lumber Co., 2100 Lafayette Ave.), Pres.; Albert G. Lang, Secy.; Jos. J. Hock (Mgr. Arundel Sand & Gravel Co.), Treas. Mr. Duffy advises Manufacturers Record: Too early for details; several months before details can be given.

Miss., Gulfport.—Edw. Hines Lumber Co., Chicago, will build mill with daily capacity 400,000 ft. lumber; clear site, drill wells, construct ponds, etc., preparatory to constructing buildings; now considering plan details; will develop timber tract estimated to contain 3,000,000,000 ft. lumber. (Lately noted Manufacturers Record it was considering construction of this plant.)

Shreveport.—Union Lumber & Planting Co., organized with A. C. Bodenheimer, Pres.-Treas.; H. Bodenheimer, V.-P.; both of Shreveport; C. L. Oxford, Secy. and Gen. Mgr., Metcalf, La.

S. C., Alley.—H. V. Thompson & Bro. will install lumber mill. (See Flour, Feed and Meal Mills.)

Tenn., Lebanon.—Wilson County Planting Mill will erect brick building and equip for planing mill; has site with 100 ft. frontage.

W. Va., Elkins.—Intermountain Coal & Lumber Co., capital \$500,000, incptd. by N. I. Hall, D. V. Mayes, D. L. Strock and others, Address Chas. S. Rabb, 816 Connecticut Ave., Washington, D. C.

METAL-WORKING PLANTS

Tex., Houston.—Blow Pipes, etc.—Houston Blow Pipe & Sheet Metal Works, 2010 Congress Ave., will enlarge plant; install additional machinery. (See Machinery Wanted—Machine Tools.)

MINING

Ark., Mountain Home.—Concentrating Mill. Erie Mining Co. will build concentrating mill; purchased machinery.

Fla., Jacksonville.—Phosphate.—Dunnellon Phosphate Co., John L. Inglis, Pres., is considering erection of elevator and drying plant in connection with phosphate mining developments.

Ga., Cartersville.—Barytes.—New Jersey Zinc Co., 55 Wall St., New York, purchased 40 acres Bartow county barytes property; will develop; combine with development of other properties recently purchased; install additional machinery to increase output; L. R. Womelsdorf, Mgr.

Ga., Cartersville-Barytes.—Gapa Mining Co., capital \$400,000, incptd. by A. Nelson of Cartersville, Jas. B. Torbert and C. B. Samuel of Chattanooga, Tenn.

Ga., Dahlonega-Gold.—Etowah Milling Power Co. organized by C. H. Butts, T. H. McGhee, H. E. Cabiness and others; develop gold deposits in Etowah River bed.

Md., Patuxent River—Infusorial Earth.—Maryland Silicate Co. will develop 140 acres; has plant for daily output 20 tons refined infusorial earth; Wm. A. Weed, Pres.; B. L. Henderson, Secy.; T. M. Cayen, Gen. Mgr.; offices, 609 Munsey Bldg., Baltimore.

Mo., Hamburg—Stone.—Hamburg Quarry Co., capital \$200,000, incptd. by John J. Helper of Hamburg, Thos. Loneragan and Jas. J. Rutledge of St. Louis, Mo.

Mo., Mine La Motte—Granite, Limestone Rock, etc.—Valley Material & Transportation Co., capitalization \$7,500,000, incptd. with main offices in St. Louis; acquires Mine La Motte Co. holdings, including capital stock of Valley Navigation Co., operating barges on Mississippi River, Valley Short Line Ry., Valley Material Sales Co., etc.; continue development of granite, limestone rock, silica, timber, etc.; A. J. Meyer, Pres. of Mine La Motte Co., probably will be executive of new corporations.

North Carolina—Graphite.—H. M. Ashe, 1330 Healey Bldg., Atlanta, Ga., is secretary of preliminary organization planning \$1,000,000 corporation to mine graphite in North Carolina and building manufacturing plant at Atlanta; Canadian, New York and Atlanta capitalists said to be interested; Mr. Ashe advises Manufacturers Record: Cannot give any further information at present.

N. C., Wadesboro—Brown Stone.—W. L. Gilbert, Charlotte, N. C., plans organization company to quarry brown building stone.

Okla., Lincolnville—Lead and Zinc.—Pat-Frances Mining Co. organized; C. H. Gray, Pres.; R. C. Croslen, V.-P. and Mgr.; develop 10 acres; has primary equipment, including steam drill and hoist; W. S. Weyer, Engr.-Secy.-Treas., 204 Baird Bldg., Kansas City, Mo. (Lately noted incptd. with \$10,000 capital.)

S. C., Horrell Hill—Fuller's Earth and Kaolin.—Southern Clay Co., A. C. Phelps, Pres., Sumter, S. C., will develop fuller's earth and kaolin property at Horrell Hill and Blaneys, S. C.; plans installation of \$50,000 machinery equipment for daily output 75 to 100 tons refined and crude kaolin and 15 to 25 tons fullers earth; erect buildings of mill construction by own force; Maynard & Simmons, Archts.-Engrs., Atlanta, Ga. (Lately noted incptd. with \$75,000 capital, under Sumter, S. C.)

Tex., Orla—Sulphur.—Texas Sulphur Co., capital stock \$500,000, organized; Geo. A. Plummer, Pres.; H. P. Rhodes, V.-P. and Gen. Mgr.; J. A. Daniel, 2d V.-P.; G. W. Turney, Machinist; offices, 808 Carter Bldg., Houston, Tex.; develop Culberson County sulphur properties, 16 mi. from Orla; planning active operation within 90 days; let contract American Supply & Equipment Co., H. P. Rhodes, V.-P. and Gen. Mgr., Houston, to install Rhodes process mining equipment with daily capacity 600 tons sulphur; will provide railway to mines from Atchison, Topeka & Santa Fe R. R. (Geo. A. Plummer previously noted interested in sulphur development enterprise.)

Va., Big Stone Gap—Iron.—Intermont Coal & Iron Corp., R. T. Irvine, Pres., will develop iron ore properties. (See Iron and Steel Plants.)

METAL-WORKING PLANTS

Tex., Beaumont—Wire.—Texas Plating & Wire Works, capital \$2500, incptd. by John Dollinger, C. A. Wrong, Andrew Rouse and F. M. Hall.

MISCELLANEOUS CONSTRUCTION

Ala., Opelika—Swimming Pool.—City has plans for swimming pool. Address The Mayor.

Ark., Helena—Levees.—Indian Bay Levee & Drainage Dist. contemplates levee construction to cost \$2,000,000; Walter E. Winn, Ch. Engr., Winn Engineering Co., 516 Solomon Bldg., Helena, will make preliminary survey, etc. (See Drainage Systems.)

Ga., Columbus—Swimming Pool.—Columbus Country Club plans to construct swimming pool; concrete; 50x100 ft.; range in depth from 3 to 7 ft.; cost \$3500.

La., Lake Charles—Wharves, etc.—City will vote on bonds to construct wharf and warehouse facilities along lake front; wharves to be 400 ft. long and will form first unit of extensive dock system; at first planned to build wharves and docks of concrete, but later decided to use timber; also erect ware-

houses to cost \$15,000; proposed system will form part of plans to make Lake Charles inland port city. (Noted in May to have completed plans for wharf to cost \$15,000, etc.)

Md., Baltimore—Export Pier.—Baltimore & Ohio R. R. Co., F. L. Stuart, Ch. Engr., Baltimore, let contract at about \$500,000 to H. S. Kerbaugh, Inc., 723 Munsey Bldg., Baltimore, and 6 Church St., New York, to construct open export pier, replacing present structure at Locust Point export terminals; 1000x150 ft.; wooden piles; concrete deck; capacity 1000 lbs. to sq. ft.; plans and specifications by M. A. Long, Archt. for Baltimore & Ohio; new pier (No. 6) for storage of freight awaiting shipment by water; average depth of water 35 ft.; pier to have double tracks extending entire length and single track on one side. (Lately noted to award contract.)

Md., Rising Sun—Fire Apparatus.—City will issue \$16,000 fire apparatus, water and paving bonds. Address The Mayor.

Miss., Clarksdale—Levee.—Levee Board, T. G. Dabney, Ch. Engr., will enlarge levee as follows: Levee sections 22, 23 and part 24, containing 201,000 cu. yds.; sections 37 to 42, inclusive, containing 383,000 cu. yds.; sections 73 to 81, inclusive, containing 1,294,000 cu. yds.; work to be done in 1916 and 1917; also sections part 9-H, all of 10 and 11-H, part 14-H, all 15-H, part 16-H, all 17-H to 22-H, inclusive, on old front line, containing 363,000 cu. yds.; latter (2) to be done in 1917 and 1918; bids until July 3; making of contracts contingent on sale of bonds.

Miss., Meridian—Subway.—Southern Ry. let contract M. M. Elkan & Co., Macon, Ga., to construct subway to South Side across 25th Ave. (Noted in April.)

Tex., Galveston—Bulkhead.—Galveston County will construct reinforced concrete pile bulkhead on north side of seawall boulevard from Broadway to 22d St.; 7100 ft.; bids until July 17; John M. Murch, County Auditor. (See Machinery Wanted—Bulkhead Construction.)

MISCELLANEOUS ENTERPRISES

Ark., Newport—Packet Company.—City Packet Co., capital \$5000, incptd. by S. Heineman, G. H. Vogel, T. Heineman and others.

Ga., Macon—Engineering and Constructing.—Richardson Engineering & Constructing Co., capital \$10,000, incptd. by H. S. Richardson and G. C. Heldmann.

Ga., Quitman—Crematory.—City will install garbage crematory to cost \$4000. Address The Mayor.

Ga., Washington—Fire Protection.—City defeated \$5000 fire protection bonds. (Lately noted.)

Okla., Oklahoma City—Printing.—Franklin Printing Co., capital \$10,000, incptd. by Thos. J. Lynch, Walter W. Bachelder and Frank Purcell.

S. C., Columbia—Engineering.—Tomilson Engineering Co., capital \$10,000, incptd. by W. S. Tomilson and R. L. Hollowell.

Tenn., Newport—Laundry.—Garfield Seas will build laundry; purchased machinery reported to cost \$5000.

Tex., Dallas—Dyeing and Cleaning.—Excel-Sure Dyeing & Cleaning Co., capital \$3000, incptd. by V. J. Brannon, T. Lumberg and Joe T. Moore.

Tex., Paris—Laundry.—City Steam Laundry is having plans prepared by Lang & Wittchell and Curtis, Broad & Lightfoot, Archts., Paris, for brick addition to laundry.

Va., Newport News—Marine Railway.—O. A. Bloxom, Battery Park, Newport News, proposes to construct marine railway.

MISCELLANEOUS FACTORIES

Ala., Birmingham—Peanut Products.—Jo-Pea-Nut Products Co. (B. Joseph and others) contemplates enlarging plant.

Ala., Mobile—Automobile Ignition.—Herlock Automatic Ignition Co., organized with L. G. Adams, Pres.; J. Herzog, V.-P.; L. A. Swift, Secy.; Walter Matlock, Treas.

Ala., Mobile—Shipbuilding.—D. R. Dunlap, Pres. Alabama Iron Works, arranged for consolidating his company with Ollinger & Bruce Drydocks and Gulf Drydocks; form new company, buying Ollinger & Bruce plant and leasing Gulf plant; increase capitalization to \$500,000; build drydock and install steel plate shop at Ollinger & Bruce plant; provide for constructing steel vessels; properties will include 1200 ft. waterfront on Mobile River, 1800 ft. waterfront on Pinto Pass, 3 floating docks, wharves, dredged slips, sawmills, woodworking plants, etc.

D. C., Washington—Bakery, etc.—Old Dutch Market Co., 822 Pennsylvania Ave. N.

W., will construct \$100,000 market, cold-storage, office, bakery, etc.; building 5 stories; 120x34 ft.; fireproof and water-proof; reinforced concrete walls and floors; exterior of light tapestry brick; steel sash; sanitary fixtures; electric and cold-storage plants in basement; steam hydraulic elevators; first and second floors for storage; third floor for offices; in rear have steel lockers for employees; bakery on fifth floor; sausage manufacturing on 4th and 5th floors; Boyle-Robertson Construction Co., Contr., 1516 H St., N. W.; Oscar G. Vogt, Archt., 1318 Kearney St. N. E.; both of Washington.

Fla., Pensacola—Cigars.—Havafloida Cigar Co. organized with John N. Day, Pres.; A. M. Avery, Jr., V.-P.; J. C. Clark, Secy.-Treas.; will establish cigar factory at Chase and Baylen Sts.

Ga., Augusta—Bottling.—Glover & McKenzie purchased bottling plant; will improve and enlarge.

Ga., Savannah—Bottling.—Consumers' Beverage Co. is being organized by G. R. Benton (Hotel De Soto) and others.

Ky., Louisville—Automobile Tires, etc.—Houghland Bros. Co., capital \$1200, incptd. by Oscar and Roscoe Houghland, and Chas. Vonderhite.

Ky., Louisville—Pianos and Organs.—Adler Mfg. Co. will repair factory; cost \$10,000.

Ky., Louisville—Distillery.—Mattingly & Moore Distilling Co., capital \$50,000, incptd. by Michael and F. Jos. Herrman and P. M. O'Bryan.

Ky., Louisville—Monuments.—Schreck & Wetter Monument Co., capital \$2000, incptd. by Peter J. Schreck, Wm. A. Wetter and Simon J. Schreck.

Md., Baltimore—Bakery.—E. H. Koester, 644 W. Lexington St., has plans by John Freund, Jr., 11 E. Lexington St., Baltimore, for bakery; main building 1 story, 140x64 ft.; another structure 3 stories, 78x55 ft.

Md., Baltimore—Shipbuilding.—Baltimore Dry Docks & Shipbuilding Co. elected following officers: Holden A. Evans, Pres., Baltimore; Clement C. Smith, V.-P. (Pres. of Wisconsin Securities Co.), Milwaukee, Wis.; J. M. Willis, 2d V.-P.; Edwin W. Poe, Secy. and Asst. Treas.; Geo. Allison, Treas. and Asst. Secy.; each of Baltimore; has plant, including docks, marine railways, machine shops, etc., employing 1800 men; Mr. Evans advises Manufacturers Record: Do not contemplate any improvements in immediate future. (Mr. Smith represents himself and other Milwaukee capitalists recently announced as having purchased control.)

Md., Colgate—Tools.—Universal Tool Co. incptd. by Harry B. Stengel and others; to manufacture tools.

Md., Frederick—Brushes.—Ox Fiber Brush Works will erect addition to manufacture higher grade brushes; building 118x50 ft., with "L" 25x50 ft.; 2 stories; brick; asbestos roof; Frank Grove, Contr.

Md., Fairfield—Steel Barges.—Ritter-Conley Mfg. Co., subsidiary to McClintic-Marshall Construction Co., both of Pittsburgh, Pa., leased Ellicott Machine Corp. subsidiary plant; will construct steel barges for oil and other cargoes; plant on Patapsco River; includes 16 acres with 700-ft. waterfront; Ellicott Co. builds mechanical equipments for these barges.

Miss., Gulfport—Bottling.—Chero-Cola Bottling Co., H. Roy Smith, Sales Mgr., Hattiesburg, Miss., will establish plant.

Mo., St. Louis—Chemicals.—Mineral Refining & Chemical Co., capitalization \$2,000,000, incptd.; Jos. Marimon, Pres., Havana, Cuba; M. J. Mandulay, Director, Havana, now registered at Planters' Hotel, St. Louis; New York capitalists interested; let contract Frain-Colnon Contracting Co., St. Louis, to construct 8 buildings of wood and stone; install equipment with daily capacity 50 tons substitute for white lead; R. Bonastre of New York, also interested, registered at Planters' Hotel, St. Louis, wires Manufacturers Record indicating further details will soon be announced.

Mo., St. Louis—Prestolite Service.—Prestolite Co., 27th and Locust Sts., will occupy 1-story 135x42-ft. building for service station for storage batteries; cost \$8000 without mechanical equipment; steel and wood construction; tar-gravel roof; concrete floor; low-pressure steam-heating equipment costing \$1200; building owner, June Realty & Building Co., 104 N. 8th St.; Archt., J. M. Hirschstein; Contr., I. Segal, Central National Bank Bldg., all of St. Louis. (Supercedes recent item.)

Okla., Enid—Soap.—Busy Bee Soap Co., capital \$10,000, incptd. by O. W. Lynch, J. A. Wilt and E. B. Shepherd.

Okla., Muskogee—Goben Mfg. Co., capital \$40,000, incptd. by Ed. F. Gobell of Muskogee, Henry Meinhlitz of Okmulgee, Okla., and Duncan McKay of Dewar, Okla.

Okla., Sand Springs—Washing Machines.—Imperial Washing Machine Co., capital \$40,000, incptd. by W. E. Page, G. W. Moore, Viola E. Stafford and Ed Mondell, all of Tulsa, Okla.

Okla., Tulsa—Tank Protector.—Hartsaw Tank Protector, capital \$100,000, incptd. by D. W. Hartsaw, Sam Arrendale and R. W. Conger of Bristow, Okla., and E. M. Barber, Drumright, Okla.

Tenn., Chattanooga—Irons.—Velvet Edge Iron Co., capital \$5000, incptd. by H. M. Reed, Chas. Hardie, John C. Vance and others.

Tenn., Chattanooga—Novelties.—Corley Comb & Novelty Co., capital \$5000, incptd. by H. M. Reed, O. Severe, A. W. Chambliss and others.

Tenn., Memphis—Tires.—Lee Tire Co., capital \$5000, incptd. by G. M. Seewald, F. H. Rouse, R. T. Seewald and others.

Tenn., Memphis—Bags.—Bosworth Bag Co., Millard M. Bosworth, will lease building and install equipment to manufacture cotton and burlap bags.

Tex., Beaumont—Dairy Products.—Beaumont Dairy Products Co., capital \$10,000, incptd. by Jas. L. Keith, S. G. Burnett and M. G. Thomas.

Tex., Beaumont—Chemicals.—Schauman Chemical Co. organized; H. D. Fletcher, Pres.-Mgr.; F. A. Schauman, V.-P.; J. W. Ames, Secy.-Treas.; build \$5000 plant to manufacture pine oils; tars, turpentine, wood preserver, etc. (H. D. Fletcher lately noted under Orange, Tex., as to establish plant.)

Tex., Brownville—Sugar.—Texas Sugar Co., capital \$100,000, incptd. by Lewis S. Clark, W. H. McGrath and F. W. Kibbe.

Tex., Dallas—Garments.—Dallas Garment Mfg. Co., capital \$5000, incptd. by H. P. Brackney, J. F. Smith and Ed Hargrave.

Tex., Dallas—Chemicals.—Pyrotone Chemical Co., capital \$20,000, incptd. by C. I. Fuisson, J. M. Brooks and L. H. Flewelen.

Tex., Fort Worth.—Dickerson Cotton Cleaner Co., capital \$10,000, incptd. by W. A. Bennett, E. E. Dickerson and B. D. Cramer.

Tex., Freeport—Sulphur Refining.—Freeport Chemical Works (San Francisco Chemical Co., 524 California St., San Francisco, Cal.) has final plans for sulphur refinery; about to open building bids; absolutely fireproof construction; begin with 100x100-ft. building costing \$50,000; P. M. Paulson, architect, at San Francisco office, receiving building proposals; P. M. Paulson and J. W. Fay, Constr. Engrs., Freeport; open machinery bids during July; address machinery proposals to Freeport and San Francisco offices; this equipment will include furnaces, electric motors, etc., for initial daily production 50 tons refined sulphur, flower of sulphur and rock sulphur; noted in April to build plant. (See Machinery Wanted—Sulphur-plant Equipment.)

Tex., San Antonio—San Antonio Utilities Mfg. Co., capital \$10,000, incptd. by H. H. Knuth, H. L. Rice and T. M. West.

Tex., Waco—Vinegar, etc.—Paul Maaz Vinegar & Pickle Co., capital \$20,000, incptd. by Paul Maaz, Walter Dietz and Leslie Clark.

Va., Charlottesville—Bottling.—Charlottesville Lemon-Kola Bottling Co., capital \$25,000, chartered; R. H. Alvis, Pres., Lynchburg; W. S. Boles, Secy.-Treas., Charlottesville.

Va., Quantico—Shipbuilding.—International Steel & Shipbuilding Co., authorized capital \$2,500,000, chartered to succeed International Plate Co. recently chartered; directors include G. A. Garrett, V.-P. of Du Pont National Bank; Hugh McIsaac, V.-P. of Publicity Corp., 61 Home Life Bldg.; both of Washington, D. C.; C. L. Ford, Mgr. of Southern Boiler and Tank Works, Memphis, Tenn.; Thos. J. Shea, Portland, Ore.; Jas. J. Shirley of T. A. Gillespie Co., New York; let contract to Kaucher, Hodges & Co., Memphis, Tenn., for construction 3 large buildings for plant; \$50,000 to \$120,000 estimated cost buildings; 500x150-ft. structure for main shop; 300x75-ft. structure for mould loft and draughting-room; contractors wire Manufacturers Record: "Not ready to give out details on Quantico contract. Give full information as soon as ready to have particulars published." International company is understood to have arranged for necessary machinery and to have contracts for 6 large vessels. Address Mr. McIsaac. (International Steel Plate Co. lately noted to build shipyards, etc.)

W. Va., Parsons—Tannery.—J. K. Mosser Co., capital \$100,000, incptd. by Thos. J.

Keogh, M. O. Myer, O. Long, Jr., and others, all of Chicago, Ill.

W. Va., Warwood.—Automatic Sprinklers, etc.—Globe Automatic Sprinkler Co., 2019 Washington Ave., Philadelphia, Pa., advises Manufacturers Record: Completed main building of brick and iron, 200x30 ft., costing \$5,000; installed equipment to cut and thread pipe and for other work for sprinkler and steam heating equipments; this equipment (machinery and tools) cost \$20,000; daily capacity 1500 sprinkler heads, etc.; also propose to erect 80x60 ft. addition of brick and iron with monitor roof; also contemplate erecting iron skeleton frame construction to permit installation of electric crane for handling pipe from cars to storage bins; estimated cost \$5000 to \$6000. (Previously noted.)

MOTORS AND GARAGES

Ga., Atlanta.—Garage.—Georgia Ry. & Power Co. let contract H. D. Watts Co., Atlanta, to erect garage; 1 story; 68x230 ft.; brick; cost \$18,000. (Lately noted.)

Ky., Mayfield.—Garage.—Luther Nall and W. Y. Vaughan will erect garage 40x150 ft.

Miss., Jackson.—C. O. Wilkins has plans by Emmett J. Hull, Jackson, for one-story 50x140 ft. garage; cost without equipment, \$5000; brick construction; Barrett specification roofing; concrete floor; sprinkler system; will let contract.

Mo., Kennett.—Garage.—A. A. Sexton plans to erect brick garage.

Mo., St. Louis.—Automobiles.—Briscoe Motor Sales Co., capital \$5000, incptd. by W. C. Shields, Henry C. Deabold and Frank Bishop.

Mo., St. Louis.—Automobiles.—Twentieth Century Mfg. & Sales Co., capital \$3000, incptd. by Edward M. Lynch, Bernard P. Bogy and Humphrey A. Buck.

Okla., Shawnee.—Garage.—Chief Oklahoma Auto & Garage, capital \$5000, incptd. by J. T. Lucas, Jas. H. Turner and A. O. Turner.

S. C., Anderson.—Garage.—A. L. Todd will build garage; 70x120 ft.; 2 stories; brick or reinforced concrete; Anderson Auto Co. (J. I. Chipley, owner, Greenwood, S. C.) will lease structure.

Tex., Ennis.—Garage.—A. H. Dunkerly let contract to erect garage; 1 story; double deck; concrete floor; cost \$5000; to be occupied by National Garage.

Tex., Wichita Falls.—Garage.—N. B. Chenault will erect garage; 1 story; 50x150 ft.; brick; cost \$3000; awarded contract.

Va., Norfolk.—Garages.—A. T. Hoffheimer and Norman Hoffheimer will build block of private garages; 52x158 ft.; brick; fireproof; granolithic floor; contain 30 private garages, each 11x18 ft., with space for washing and repairing machines.

Okla., Shawnee.—Garage.—Chief Oklahoma Auto & Garage, capital \$5000, incptd. by J. T. Lucas, Jas. H. Turner and A. O. Turner.

S. C., Anderson.—Garage.—A. L. Todd will build garage; 70x120 ft.; 2 stories; brick or reinforced concrete; Anderson Auto Co. (J. I. Chipley, owner, Greenwood, S. C.) will lease structure.

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RAILWAY SHOPS, TERMINALS, ROUNDHOUSES, ETC.

W. Va., Hinton.—Chesapeake & Chesapeake Ry. F. I. Cabell, Ch. Engr., Richmond, Va., let contract Pettiford & Co., of Lynchburg, Va., to lengthen engine stalls in roundhouse, install cylinder conveyor and build steel water tank.

ROAD AND STREET WORK

Ala., Birmingham.—Jefferson County Board of Revenue voted to construct Nichols' Fish Trap and Taylor's Ferry roads to Warrior River; will issue \$275,000 warrants. (County Comms. noted in May to have report from W. A. Crossland, U. S. engr., on route for road to Warrior River, including construction of \$50,000 bridge.)

Ala., Guntersville.—Marshall County will grade, drain and gravel 4 mi. Guntersville and Huntsville Rd. beginning at end of present graded road; bids until Aug. 1; W. S. Keller, State Highway Engr., Montgomery, Ala. (See Machinery Wanted—Road Construction.)

Ala., Mobile.—Mobile County will construct section of Delta Highway lying within Mobile County; Board of Revenue and Road Comms. of Mobile County, O. A. Alvarez, Clerk, receive bids until July 1; bids for highway as whole connecting Mobile and Baldwin counties may be submitted, but amount for that portion lying in Mobile County to be designated separately. (See Machinery Wanted—Road Construction.)

Ala., Troy.—City will construct 17,000 to 20,000 yds. of paving; brick, bitulithic or wood block; bids until June 28; Lawrence E. Gellerstedt, Mayor. (See Machinery Wanted—Paving.)

Ala., Wetumpka.—Elmore County Comms. will construct roads in 4 Comms.' Dist.;

expend \$17,000; bids until July 24. (See Machinery Wanted—Road Construction.)

Ark., Little Rock.—City let contract to M. D. L. Cook, Little Rock, to pave 12 blocks, Cumberland St., etc., in Dist. 245; bitulithic pavement; contract let to Pettit-Galloway Co., Little Rock, for necessary water supply construction; expenditure \$37,000; Lund & Hill, Engrs., Little Rock.

Ark., Newport.—City has \$6000 for street paving; about 1200 ft. concrete construction; has not decided date of opening bids; A. S. Maddling, Engr. (Lately noted to construct concrete highway.)

Ark., Newport.—Jackson County Comms., W. D. McLean, County Judge, will construct 20 mi. pike road; completed surveys; soon invite bids. (Noted in May as planning road construction.)

Ark., Pine Bluff.—City will pave West 15th and West 16th Aves. Address The Mayor.

Ark., Texarkana City.—City has \$240,000 available for street paving; 50 city blocks; character of construction not determined; E. F. Peterson, Engr.; Paul Huckins, official in charge. (Lately noted to construct concrete sidewalks.)

Fla., Okeechobee.—City will construct sidewalks on east side of Okeechobee Ave., from South Park to 7th St., north side 7th St. to Osceola St., west side Osceola St. to North Park St. and east side Osceola St. from South Park to North Park St.; bids until July 5; Henry Chandler, City Clerk. (See Machinery Wanted—Paving.)

Fla., Miami.—City let contracts aggregating \$96,000 for paving, grading, etc.; Biscayne Construction Co., paving and grading; Freedlund Construction Co., rolling; Biscayne Construction Co. and L. R. Blackman, 3 mi. concrete sidewalks; curbs and gutters to be placed on both sides of streets to be paved.

Fla., Sebring.—City let contract Wm. T. McDonald Construction Co., Mt. Vernon, N. Y., to improve streets; 40,000 sq. yds. asphaltic concrete paving and 27,000 lin. ft. curb and gutter; \$56,000 available; Jaudon Engineering Co., Engr., Savannah, Ga. and Bartow, Fla.; H. C. Brown, Mayor. (Call for bids noted in May.)

Md., Baltimore.—City will grade, curb and pave Baltimore St. from Garrison lane to Elliott Driveway, Contract No. 147; 5000 sq. yds. sheet asphalt, 2300 lin. ft. curb and 10,000 cu. yds. grading; bids until July 5; John H. Robinette, Prest. Comms. for Opening Streets. (See Machinery Wanted—Paving.)

Fla., West Palm Beach.—Palm Beach County (Lake Worth and vicinity) voted \$55,000 bonds to construct 30 mi. of road in flatwoods and bridge across Lake Worth. Address County Comms.

Ga., Atlanta.—Fulton County, C. M. Holland, Purchasing Agent, 507 Courthouse, will construct, under separate contracts, following roads: Paces Ferry Rd., 35,000 sq. yds.; E. Paces Ferry Rd., 6000 sq. yds.; Lakewood Ave., 13,000 sq. yds.; Mayson & Turner Rd., 25,000 sq. yds.; Hightower Rd., 19,000 sq. yds.; Zoo Drive in Grant Park, 6000 sq. yds.; bids until July 15; specifications and further information on application. (See Machinery Wanted—Road Construction.)

Ga., Metter.—Candler County Comms. contemplate vote on bonds for road construction.

Ky., Georgetown.—Scott County Comms. let following contracts to reconstruct inter-county-seat roads, under \$100,000 bond issue, as follows: Phelps-Post-Guyn Co., Lexington, Ky., Paris and Old Oxford pikes; Gormley Bros., Versailles, Ky., Lexington Pike; M. Chandler & Son, Versailles, Ky., Frankfort and Cincinnati pikes; C. N. Wood, Georgetown, Ky., Paynes Depot Pike; Lancaster & Coyle, Stamping Ground Pike.

Ky., Hazard.—City will pave several streets with concrete; 21,000 sq. yds.; bids until July 12; plans and specifications on application; W. M. Pursfull, Mayor. (See Machinery Wanted—Paving.)

Ky., Lexington.—Fiscal Court and Fayette County Road Com. let contract Carey-Reed Co., of Lexington, at \$80,000, to construct 10 mi. Warrenton paved road to extend from Lexington, 5 mi. on Maysville pike, 3 mi. on Richmond pike and 2 mi. on Versailles pike; stone resurfacing by county's own labor and engineers; also will construct with county labor and material 10 mi. rock asphalt roads to extend from Lexington, 6.41 mi. on Georgetown pike, 4.87 mi. on Versailles pike, from end of Warrenton construction to Woodford County line. Theo. Lewis, County Clerk. (Call for bids lately noted.)

Ky., Louisville.—Jefferson County Fiscal

Court, Russell Gaines, County Engr., let contract to Louisville Asphalt Co., Louisville, for construction 19,500 sq. yds. bituminous asphalt on Preston St. (Supersedes recent item.)

Ky., Nicholasville.—Jessamine County Comms. will reconstruct Union Mill Pike from Nicholasville to Valley View; replace wooden structures by steel and concrete structures; cost \$20,000; State to pay one-half of cost.

Ky., Paducah.—McCracken County Comms. reduced amount of bond issue for road construction from \$40,000 to \$30,000; will vote in Nov. (Noted in May.)

Ky., Somerset.—Pulaski County Comms. let contract to construct 66 mi. of road.

Ky., Wickliffe.—Ballard County Comms. let following contracts to construct 16.48 mi. of State-aid roads: Jean Scamahorn at \$11,648.22, 5.06 mi. of Bandana and Oscar Rd.; Fraser & West Kentucky Construction Co. at \$9498.72, 4.22 mi. on Hinkleville and La Center Rd.; Armstrong & Grubbs at \$17,821.51, 7.2 mi. on Wickliffe, Slater and Hinkleville Rd.; Comms. rejected bids to construct 36 mi. of road and will readvertise for bids to be opened July 3; G. O. Johnson, Clerk Fiscal Court. (Lately noted inviting bids to construct 54.88 mi. gravel roads.)

Ky., Versailles.—City will construct 4000 sq. yds. vitrified brick pavement on concrete base, grade street and construct 1400 lin. ft. concrete curb; receiving bids; Chas. E. Collins, Engr., Drexel Bldg., Philadelphia, Pa.; Harry C. Taylor, Mayor. (See Machinery Wanted—Paving.)

Ky., Whitesburg.—City contemplates vote on \$10,000 bonds for street improvements. Address The Mayor. (Lately noted.)

La., Amite.—Tangipahoa Parish, Road Dist. No. 3, will construct 20 mi. of roads; Road Suprs.' Dist. No. 3, Chas. Buck, Chrmn., Independence, La., receives bids until July 25. (See Machinery Wanted—Road Construction.)

La., New Orleans.—State Legislature considering plan to issue \$15,000,000 bonds for road construction; Luther E. Hall, Governor, Baton Rouge.

Md., Baltimore.—City will pave Calvert St. from Pleasant to Read St.; estimated cost, \$21,000; bids until Aug. 7; R. Keith Compton, Chrmn. and Conspl. Engr. Paving Com.

Md., Rising Sun.—City will issue \$16,000 paving, water and fire apparatus bonds. Address The Mayor.

Md., Rockville.—Montgomery County Commissioners will construct 4½ mi. State-aid highway upon or along Poolesville Rd. between Dawsonville and Poolesville; bids until July 18. (See Machinery Wanted—Road Construction.)

Miss., Canton.—City let contract S. A. Gano, Jackson, Miss., and Murrill Construction Co., Vicksburg, Miss. and Memphis, Tenn., for paving; \$40,000 expenditure; 5000 yds. sheet asphalt street paving and 4 mi. gravel streets with concrete curbs and gutters. (Lately noted inviting bids.)

Miss., Cleveland.—City let contract to Jones Plumbing Co., Okla. City, Miss., for 1½ mi. gravel road construction; \$14,000 available for expenditure; W. W. Boone, City Engr. (Lately noted inviting bids.)

Miss., Ellisville.—Jones County Highway Comms. will let contract July 5 to construct highway through county from city of Laurel to Jasper county line near Mossville, Miss.; grade and gravel for width of 16 ft.

Miss., Houston.—Chickasaw County, First Suprs. Dist., issued \$33,000 bonds to construct roads. Address County Suprs.

Miss., Houston.—Chickasaw County, Fourth Suprs. Dist., will issue \$7000 bonds to construct roads. Address County Suprs.

Miss., Port Gibson.—City is reported to issue \$7200 bonds to pave streets. Address The Mayor.

Miss., Pontotoc.—Pontotoc County Commissioners, C. C. Robbins, Chrmn., let contract E. L. Huston, Pontotoc, to construct 7 mi. highway; \$28,000 expenditure; Jos. P. Carey, Engr., Pontotoc. (Lately noted inviting bids.)

Mo., Independence.—Jackson County Commissioners let contract Davidson Construction Co., of Kansas City, at \$40,817 to macadamize Hiller and Buckner Rds.

Mo., Joplin.—City Com. will pave West 4th St. from alley west of Gray St. to Schiffer-decker Ave. with concrete; cost \$5,728.

Mo., Liberty.—Clay County voted \$1,250,000 bonds for road construction; plans to build 202 mi. rock road; provides improvements placing Clay County farm within 2½ mi.

of permanent highway. Address County Comms. (Lately noted to vote.)

N. C., Morganton.—Burke County votes August 17 on \$50,000 bonds to construct roads; J. B. Holloway, Chrmn., County Comms.

N. C., North Wilkesboro.—Town Comms. will construct 25,000 sq. yds. sheet asphalt pavement in business district.

Okla., Duncan.—Stephens County (Township including Loco) votes Aug. 1 on bonds to construct roads. Address County Comms.

Okla., Holdenville.—Hughes County Commissioners contemplate voting on \$55,000 bonds to construct roads and build bridge across Canadian River. Address County Comms.

Okla., McAlester.—City will pave 1 mi. of South Main St. Address The Mayor.

Okla., Newkirk.—Kay County voted \$250,000 bonds to construct roads. Address County Comms.

Okla., Sayre.—Beckham County, Merritt Township, votes July 12 on \$10,000 bonds to improve roads. Address County Comms.

Tenn., Benton.—Polk County voted \$95,000 bonds to complete 9 pike roads already graded and construct road across Smoky Mountains to connect road systems of 2 sections of county; districts include Ducktown, Cooper Hill and Benton. (Noted in Apr.)

Tenn., Brownsville.—City will vote on \$25,000 bonds to improve streets; N. B. Keathley, Mayor.

Tenn., Erwin.—City will improve streets; paving, curbing, guttering, etc.; bids until July 12; N. T. Tucker, Mayor. (See Machinery Wanted—Paving.)

Tenn., Erwin.—Town has plans and specifications (on file with Town Engr.) for street paving, curbing, guttering, etc.; bids until July 12; N. T. Tucker, Mayor; lately reported to expend \$23,000 for street improvements. (See Machinery Wanted—Paving.)

Tenn., Ooltewah.—James County votes Aug. 5 on \$150,000 bonds to improve 85 mi. of road. Address County Comms.

Tenn., Memphis.—City let contract to pave South Main St., from Linden to Calhoun Aves., and Front St., from Jefferson to Monroe Aves.; cost \$28,000. J. H. Weatherford, City Engr.

Tenn., Morristown.—City will pave North Second St., from Cumberland to Cedar Sts.; South Henry, from Southern Ry. to end of street; South Second, from Henry to Cumberland Sts., and Cumberland, from South Second St. to Southern Ry. Address The Mayor.

Tenn., Savannah.—Hardin County Comms. have \$100,000 available for expenditure to construct gravel roads; 110 mi.; not decided date of opening bids; A. A. Watson, County Judge. (Lately noted voting \$100,000 bonds.)

Tex., Beaumont.—Jefferson County Commissioners let contracts aggregating \$175,000 to construct 30 mi. of road; Eureka Construction Co. (The Texas Co.), 4 mi. concrete and asphalt construction, from Port Arthur city limits toward Beaumont; Uvalde Rock Asphalt Co., Beaumont, 1 mi. asphalt on Beaumont-Port Arthur Rd. in Prec. No. 2, joining paving of Eureka Co., and 2 mi. asphalt on Beaumont-Port Arthur Rd., beginning at Kansas City Southern R. R. crossing and Sabine Ave. and extending toward Port Arthur; Chapin-Colglazier Construction Co., Beaumont, 2 mi. asphalt construction from Uvalde Rock Asphalt Co.'s paving toward Port Arthur; 3 contracts call for 9 mi. paving on Beaumont-Port Arthur Rd.; all 15 ft. wide; also let contracts for gravel and shell surfacing on following roads: Haden & Bates of Galveston, at \$52,000, Nomesour Lake Rd., China-Nome Rd. and Nome-Liberty Rd.; total, 13 mi.; all 14 ft. wide and to include concrete culverts; J. M. Gregg to construct Fannett-Winnie Rd. (Call for bids lately noted.)

Tex., Corsicana.—Navarro County Comms. will expend \$180,000 for roads in Road Dist. No. 4; probably gravel construction; 36 mi.; engineer not selected; R. H. Owen, County Judge. (Lately noted voting \$180,000 bonds.)

Tex., Corsicana.—Navarro County Commissioners will expend \$100,000 for roads in Road Dist. No. 5; probably gravel construction; 25 mi.; engineer not selected; R. H. Owen, County Judge. (Lately noted voting \$100,000 bonds.)

Tex., Galveston.—Galveston County Comms. will construct sidewalks, curbing, copings, etc., on seawall boulevard between 37th and 39th Sts.; bids until June 30; John M. Murch, County Auditor. (See Machinery Wanted—Paving, etc.)

Tex., Bonham.—Fannin County, Bailey

Road Dist. No. 11, voted \$60,000 bonds to construct roads. Address County Commrs.

Tex., Center.—City has \$15,000 available for street improvements; amount of work, 70 mi.; let contract to J. S. Moore & Sons; P. A. McCarthy, Engr., Laifkin, Tex. (Lately noted inviting bids, etc.)

Tex., Fort Worth.—City let contract H. K. McCollum of Fort Worth at \$86,701 to repave Main St. from Weatherford to Front St. with creosote wood blocks; F. J. Von Zuben, City Engr. (Call for bids lately noted.)

Tex., Hempstead.—Waller County voted \$25,000 bonds to construct roads and bridges. Address County Commrs. (Lately noted.)

Tex., Houston.—City let contract V. Talbot Co., Houston, at \$25,517 to construct outer belt roadway and entrance roadway to Hermann Park.

Tex., Lufkin.—Angelina County, Dist. No. 1, voted bonds to construct road from city limits to Davisville. Address County Commissioners.

Tex., Stephenville.—City will pave 2d St. with rock asphalt. Address The Mayor.

Tex., Stephenville.—City will issue \$10,000 warrants to improve streets. Address The Mayor.

Tex., Sulphur Springs.—Hopkins County, Road Dist. No. 1, will grade and improve roads; grading, 250,000 cu. yds.; macadam stone, 26,000 cu. yds.; asphalt, 51,000 gals.; gravel, 40,000 cu. yds.; concrete paving, 13,000 sq. yds.; concrete in bridges and culverts, 2500 cu. yds.; steel beams for concrete bridges, 200,000 lbs.; steel reinforcement, 250,000 lbs.; County Commrs. receive bids until July 1; J. F. Witt, Engr., Dallas; Dan R. Junell, County Judge, Sulphur Springs. (See Machinery Wanted—Road Construction, etc.)

Tex., Taylor.—City, W. E. Dozier, City Mgr., (lately noted to vote July 3 on \$50,000 bonds) has \$600,000 available for construction now under way; about 15 mi. 30 and 24-ft. streets; asphaltic concrete and rock asphalt; Kaw Paving Co.; Topeka, Kans., Contr. Streets construction several times previously noted.)

Tex., Waxahatchie.—Ellis County (Dist. comprising Crisp, Bristol and Alsford) defeated \$75,000 road bonds. (Noted in May.)

Va., Bedford.—Bedford County, Forest Dist., voted \$75,000 bonds to construct roads. Address County Commrs. (Lately noted.)

Va., Cedar Bluff.—Town will issue \$6000 bonds to improve Main St. Address Town Clerk.

Va., Charles City.—Charles City County will construct 2 mi. of gravel road between Turkey Island Bridge and Charles City Courthouse; bids until July 5; G. P. Coleman, State Highway Commr., Richmond, Va. (See Machinery Wanted—Bridge Construction, etc.)

Va., Harrisonburg.—City will construct 18,000 sq. yds. vitrified brick and asphalt block pavement; bids until July 5; E. A. Zigler, Chrmn Street Committee. (See Machinery Wanted—Paving.)

Va., Leesburg.—Loudon County Commrs. let contract Colvin & Gipson, Ashburn, Va., for road construction; 5-in. macadam; 17,000 sq. yds.; M. R. Sadler, Engr., 611 Prince St., Alexandria, Va. (Lately noted.)

Va., Lexington.—Lexington Magisterial Dist., of Rockbridge County voted \$10,000 bonds for road construction; possibly will have \$10,000 additional from State; J. P. Welsh, Supvr. (Lately noted to vote.)

Va., Lexington.—Rockbridge County, Lexington Dist., voted \$10,000 bonds to improve 6 mi. of roads; width, 20 ft. Address County Commrs. (Noted in May.)

Va., Richmond.—Administrative board let contracts for granolithic curbing and guttering in East End to cost \$15,000 on Dickerson, Littlepage, Rose and other streets. Chas. E. Bolling, City Engr. (Call for bids lately noted.)

Va., Staunton.—City let contract to Wm. Lerner & Co., P. O. Box 512, Staunton, for 4900 sq. yds. street paving lately noted; brick construction; cost about \$12,200. (See Machinery Wanted—Mixer.)

W. Va., Charleston.—City let contract R. M. Hudson Paving Co. to pave sections of South Ave., Roane Bridge, Hansford, North Rand and Ash Sts. and Crescent Rd. with asphaltic concrete and asphalt; to Central Engineering Co., sections of Piedmont St. and Indiana Ave. with asphalt; rejected bids to pave section of Hall St. and postponed award of contract to pave sections of Grant St. and South Ave. B. A. Wise, City Mgr.; Central Engineering Co. (Charleston, W. Va.) advises its contract includes about 5000 yds. on Piedmont Rd.;

Ash St., 1615 yds.; Crescent Rd., 3865 sq. yds.; Piedmont Rd., 5000 yds.; Indiana Ave., 2530 yds.; all asphaltic concrete at about \$2 per sq. yd.; total price about \$10,000; this contract including 10,000 ft. curbing, 20 catch basins, 800 ft. sewer, etc. (Call for bids lately noted.)

W. Va., Harrisville.—Ritchie County will pave with brick on concrete foundation, concrete and macadam following roads: 11 mi. Northwestern Turnpike; section Mole Hill Rd. and section Pullman Rd.; bids until July 7; Dudley D. Britt, Engr., Clarksburg, W. Va.; J. N. Sharpnack, Clerk, County Court. (See Machinery Wanted—Road Construction.)

W. Va., Keyser.—Mineral County, Piedmont Dist., voted \$85,000 bonds for road construction. Address County Commrs. (Lately noted to vote.)

W. Va., Keyser.—Mineral County, New Creek Dist., voted \$200,000 bonds for road construction. Address County Commrs. (Lately noted to vote.)

W. Va., Lewisburg.—Greenbrier County, Blue Sulphur Dist., votes Aug. 5 on \$75,000 bonds to construct road from Summers County line to Fort Spring Dist. line and on Blue Sulphur Turnpike from Alderson to Meadow Bluff line near Smeat. Address County Commrs.

W. Va., Lumberport.—City let contract Concrete Steel Bridge Co., Clarksburg, W. Va., for concrete and brick road construction; 1 1/4 mi.; \$20,000 available for expenditure; Horner Bros., Engrs., Clarksburg.

W. Va., Parkersburg.—Wood County, Lubec Dist., Lubec Magisterial Dist., voted \$100,000 bonds to construct roads. Address County Commrs. (Noted in June.)

W. Va., Wellsburg.—Brooke County voted \$800,000 bonds for road construction; determine no details until bonds are sold; Geo. C. Wells, Commr. (Lately noted to vote.)

SEWER CONSTRUCTION

Ala., Birmingham.—City will construct sanitary sewers under Improvement Ordinance No. 912-C; bids opened June 27; Julian Kendrick, City Engr. (See Machinery Wanted—Sewer Construction.)

Ga., Cochran.—City voted \$20,000 bonds to construct sewer system, extend electric light plant and water works and build ice and cold storage plant. J. C. Urquhart, Mayor. (Lately noted to have plans by Wm. M. Crook, Engr., 614 Grand Bldg., Macon, Ga.)

Ga., Lavonia.—City voted \$15,000 bonds to construct sewers. Address The Mayor. (Noted in May.)

Ga., Thomson.—City contemplates \$15,000 bond issue to construct sewer system. Address The Mayor.

Ga., Washington.—City defeated \$10,000 bonds to construct sewer system and water-works. (Lately noted.)

Ky., Lexington.—City Commrs. let contract Carey-Reed Co., of Lexington, at \$36,309.11 to construct outfall sewers; 7000 cu. yds. earth and rock excavation, over 1100 ft. vitrified pipe sewer, 5000 ft. concrete sewers, etc.; Jas. C. Rogers, Mayor. (Call for bids lately noted.)

La., Shreveport.—City will construct sanitary sewers in south and west districts; City Comm. City Hall, receives bids until July 3; Leon I. Kahn, Commr. of Public Utilities; John B. Hawley, Const. Engr., City Hall, Shreveport. (See Machinery Wanted—Sewer Construction.)

Miss., Batesville.—City votes July 3 on issuing \$5500 bonds for sewer construction. Louis B. Lamb, Mayor. (Lately noted.)

Miss., McComb.—City let contract Inland Construction Co., St. Louis, Mo., at \$91,967 to construct sewer system and sewage-disposal plant; issued \$90,000 bonds; Xavier A. Kramer, Engr., Magnolia, Miss. (Call for bids lately noted.)

Mo., Chaffee.—City contemplates voting on \$5,000 to \$40,000 bonds to extend sewer and water systems. Address The Mayor.

Mo., Harrisonville.—City votes July 6 on \$15,000 bonds to construct sewer system and sewage-disposal plant. Geo. Bird, Engr.

N. C., Henderson.—City will construct 10,000 ft. 8 to 12-in. sanitary sewers and sewage-disposal plant consisting of Imhoff tank, contact beds and sludge drying bed; bids until July 18; plans and specifications on file at office City Clerk and of Consult. Engrs.; address Engrs., Anderson & Christie, Inc., Charlotte, N. C.; M. H. Stone, Mayor. (See Machinery Wanted—Sewer Construction.)

Okla., Fairview.—City contemplates constructing sewer system. Address The Mayor.

Okla., Ringling.—City, Frank L. Ketch,

Pres. Board Trustees, voted \$30,000 bonds to construct sanitary sewers. (Lately noted.)

Okla., Stroud.—City will vote on \$30,000 bonds to improve sewer system, water works and electric light plant; Benham Engineering Co., Engr., Oklahoma City.

Okla., Tulsa.—City will construct sanitary sewer system, including laterals, outlet, etc., for Sewer Dist. No. 105; bids until July 3; also will construct sanitary sewers, including laterals, outlets, etc., in Sewer Dist. Nos. 109, 110 and 111; bids until July 6; H. H. Wyss, City Engr. (See Machinery Wanted—Sewer Construction.)

Okla., Tulsa.—City will construct 36-in. and 48-in. 2-rising brick and concrete storm sewer at 11th St. and Galveston Ave.; bids until June 29; H. H. Wyss, City Engr. (See Machinery Wanted—Sewer Construction.)

Tenn., Copperhill.—City will construct 2 mi. of sewers, etc.; bids until July 5; W. A. Park, Engr.; Boone Crawford, Mayor. (See Water-works.)

Tenn., Maryville.—City contemplates constructing sewer system; cost \$55,000. Address The Mayor.

Tenn., Riverview, P. O. at Chattanooga.—Riverview Sewerage Co., capital \$100, incptd. by Ed. Finlay, F. M. Thomas, H. S. Chamberlain and others, all of Chattanooga; plans to construct short sewer. (Ed. Finlay and others lately noted as having plans by Smallwood Co., Chattanooga, and receiving bids for construction of sewer system to cost \$300.)

Tex., Fort Worth.—City let contract Healy Construction Co. of Fort Worth at \$7722.98 to construct storm sewer drainage system on Main St. from Weatherford to Front St.; 5 1/2 in. ft. 24-in. vitrified pipe, 497 lin. ft. 18-in. pipe, etc.; F. J. Von Zuben, City Engr. (Call for bids lately noted.)

Tex., Itasca.—City will construct sewer system; J. D. Miller, Engr.

Tex., Lockhart.—City will install sewer system; Henry Exall Elrod, Const. Engr., Southwestern Life Bldg., Dallas, Tex.

Tex., Houston.—City let contract Texas Construction Co. at \$52,350.50 to construct Paige St. storm sewer.

Va., Richmond.—Administrative Board let contracts totaling \$233,429.78 to construct 5 sections concrete sewer along Bacon's Quarter Branch, 5200 ft., to prevent overflow of Shockoe Creek; Elkan & Tufts, Macon, Ga., \$61,975.25; A. W. Maynard, \$39,404.52; Ocean Construction Co., \$39,029.09; L. Hankins, \$37,621.67; Van Doren Bros. at \$55,399.25, each of Richmond; pipe and cement to be furnished by city; Chas. E. Bolling, City Engr. (Lately noted inviting bids.)

TELEPHONE SYSTEMS

D. C., Washington.—Chesapeake & Potomac Telephone Co., 722 12th St. N. W., is reported as having plans to remodel building at 105 N. Alfred St. for exchange.

Okla., Goltry.—Goltry Independent Telephone Co., capital \$250, incptd. by W. C. Nelson, C. F. Preston, C. E. Kising and others.

Tenn., Memphis.—Delta Planting Co., Central Bank Bldg., will install wireless telegraph system from Memphis to its 7 cotton plantations in Mississippi; distance 175 mi.

Tex., China Springs.—China Springs Telephone Co., capital \$232, incptd. by T. N. Curtain, D. G. Stewart and Frank Walker.

Tex., Paris.—Southwestern Telephone & Telegraph Co., Dallas, Tex., purchased site 54x108 ft. on which to erect exchange.

TEXTILE MILLS

Ark., Marianna.—Cotton Cloth.—Mississippi Hull Fiber Co., Jos. Newburger, Pres., Memphis, Tenn., plans to build hull liner mill. (See Tenn., Memphis.)

Ga., Cedartown.—Khaki.—Noble-Beveridge Mfg. Co. organized by Fred D. Noble, Geo. Beveridge and Fred J. Bounds; will bleach, dye, waterproof and manufacture khaki; purchased machinery; later install spinning and weaving equipment to manufacture ducking.

N. C., Kittrell.—Hosiery.—R. E. Barnes and C. B. Barnes considering establishment of mill to knit hosiery. (See Machinery Wanted—Knitting Machinery.)

N. C., Raeford.—Hosiery Yarn.—Raeford Power & Mfg. Co. will, it is reported, add 4000 spindles.

S. C., Columbia.—Cotton Cloth.—Wateree Mills, capital stock \$300,000, incptd. by Wm. Elliott, R. B. Herbert and E. W. Mullins; offices with Elliott & Herbert, National Loan and Exchange Bldg.

S. C., Columbia.—Cotton Cloth.—Moultrie Mills, capital stock \$175,000, incptd. by Wm. Elliott, R. B. Herbert and E. W. Mullins; offices with Elliott & Herbert, National Loan and Exchange Bldg.

S. C., Columbia.—Cotton Cloth.—Whitcomb Mills, capital stock \$350,000, incptd. by Wm. Elliott, R. B. Herbert and E. W. Mullins; offices with Elliott & Herbert, National Loan and Exchange Bldg.

Tenn., Johnson City.—Cotton Cloth.—D. D. Little, Marion, S. C., and associates plan \$625,000 company to build 25,000 to 40,000 spindle mill.

Tenn., Memphis.—Cotton Linters.—Mississippi Hull Fiber Co., capitalization \$50,000, organized; Jos. Newburger, Pres.; J. H. McNeil, Secy.-Treas.; will construct frame building with sheet-iron sides; install machinery with daily capacity 25 bales hull linters; also plans to build mill at Marianna, Ark.

Va., Roanoke.—Artificial Silk.—Viscose Co., Marcus Hook, Pa., let contract Irwin & Leighton, 12th and Cherry Sts., Philadelphia, Pa., to construct buildings for mill to have weekly capacity 40,000 lbs. artificial silk; Manufacturers Record recently stated construction details as follows: Five-story 153x77-ft. building with columns, floors and roof of reinforced concrete (flat slab construction), rolled steel windows and freight elevator; 1-story 57x143-ft. building (brick walls and shed construction) with roof of saw-tooth skylights, and cast-iron columns and steel trusses with plank roof covered by composition roofing; 3-story 166x58-ft. building of reinforced concrete, flat slab construction similar to 5-story structure; 2-story and basement 154x143-ft. and 163x73-ft. structures (2) with brick walls and generally of reinforced concrete construction, with composition roofing; 108x70-ft. power-house with brick walls and overhead coal bunkers; 191-ft. radial brick chimney, 11 1/2 ft. inside diam.; 1,077,000-gal. concrete reservoir.

WATER-WORKS

Ga., Cochran.—City voted \$20,000 bonds to extend water works, etc. J. C. Urquhart, Mayor. Lately noted. (See Sewer Construction.)

Ga., Lavonia.—City voted \$30,000 bonds to construct water works. Address The Mayor. (Noted in May.)

La., Lockport.—Village will construct water-works, to include pumping station, water mains and fire plugs; W. R. Pennington, Chrmn. Fire Protection Committee.

Ga., Atlanta.—Atlantic Steel Co. will make improvements to water system; build main pump house and equip with two 16-in. 7000 gal. per min. centrifugal pumps driven by 200 H. P. A. C. motors; space for additional 7000 gal. unit; pump house of brick with steel roof, trusses and corrugated iron roofing; build concrete and wood pump house in which to install old supply pumps, etc. (See Iron & Steel Plants.)

Ga., Monroe.—City contemplates improving water-works; Walter G. Kirkpatrick, Engr., Jackson, Miss.

Ga., Washington.—City defeated \$10,000 bonds to construct water-works and sewer system.

Miss., Mound Bayou.—Town, S. H. Harris, Clerk, will construct water works; to include 4-in. artesian well, oil engine and pump, etc.; bids until July 13; plans and specifications on file. (See Machinery Wanted—Water Works.)

Mo., Chaffee.—City contemplates voting on \$25,000 to \$40,000 bonds to extend water and sewer systems. Address The Mayor. (Lately noted.)

Mo., Fulton.—William Wood College contemplates construction of water works.

Mo., Rising Sun.—City will issue \$16,000 water, paving and fire apparatus bonds. Address The Mayor.

N. C., Salisbury.—City will construct filtration plant and secure new source of water supply; includes laying 5 1/2 mi. cast-iron pipe, either 14 or 16 in. in diam.; furnishing and installing motor-driven centrifugal pumps, filtration plant, filter house, reservoir, power station, gate valves, tower and tank, transformers and other appurtenances; Water Commrs., J. W. Neave, Supt., receive bids until July 12; Walter H. Woodson, Mayor; J. L. Ludlow, Engr., Winston-Salem, N. C.; lately noted as having plans prepared by J. L. Ludlow for water works to include pipe lines, pumping station, reservoir, etc.; to have daily capacity of 3,000,000 gals. and cost \$125,000. (See Machinery Wanted—Water Works.)

Okla., Blanchard.—City contemplates constructing water works and electric light system. Address The Mayor.

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Okl., Bromide.—City contemplates constructing water works and electric light system. Address The Mayor.

Okl., Stroud.—City will vote on \$30,000 bonds to improve water works, electric light plant and sewer system; Benham Engineering Co., Engr., Oklahoma City.

Tenn., Copperhill.—City will construct gravity water system, 100,000 gal. concrete standpipe and 2 mi. of sewers; bids until July 5; W. A. Park, Engr.; Boone Crawford, Mayor; lately noted to have voted \$30,000 bonds for water-works and sewer construction. (See Machinery Wanted—Water works, etc.)

Tenn., Memphis.—City let following contracts to construct reservoirs: A. De Franceschi at \$11,547, reservoir No. 4, along Bayou Gayoso, from 24 to 3d Sts.; 33 cu. yds. foundation concrete, 1100 cu. yds. concrete in walls, 165 cu. yds. concrete in channel lining and 330 cu. yds. excavation; Fowler Construction Co. at \$25,633, reservoir No. 3, along Bayou Gayoso, from Mill Ave. to 2d St.; 490 cu. yds. concrete channel lining, 81 cu. yds. concrete in gravity wall, 5900 cu. yds. channel excavation, 40,000 cu. yds. reservoir excavation and 500 cu. yds. footing concrete; Kocher Bros. at \$28,371, Special North Memphis Levee, reservoir No. 2 and east part of No. 1, 85 ft. west of Main St. to Mill Ave., along Bayou Gayoso; 1262 cu. yds. reinforced concrete in arch section and retaining wall, 720 cu. yds. footing concrete, 500 cu. yds. concrete and gravity wall, 165 cu. yds. concrete in channel lining and 2350 cu. yds. excavation; T. C. Ashcroft, Mayor. (Call for bids noted in April.)

Tenn., Bristol.—City may expend \$160,000 for water works construction; proposes providing 2 filtration plants, 2 reservoirs, etc.; for a daily capacity 5,000,000 gals.; Knight & Quayle, Engrs., Chattanooga. (Lately noted as receiving report from these engineers.)

Tenn., Spencer.—Van Buren County Court plans to construct water works.

Tex., El Paso.—City contemplates purchase of turbine engine for water works. Address The Mayor.

Tex., Kingsville.—City voted \$150,000 bonds for water system; \$20,000 to purchase local plant and \$130,000 for constructing distributing system. Address The Mayor. (Lately noted to vote.)

Tex., Troup.—City let contract at \$17,500 to construct water-works; daily capacity 125,000 gals.; 75,000-gal. elevated tank; 50,000-gal. reservoir; 1000-ft. dam; 8, 6 and 4-in. pipes; electric motors; invites bids until July 12 to furnish material, including cast-iron water pipe and fittings, hydrants and valves, water tower, pumping machinery, electric motors, oil engines, etc.; M. Griffin O'Neil & Sons, Engrs., Dallas; J. D. Collier, City Sec.; call for construction bids noted in May. (See Machinery Wanted—Water-works Material.)

WOODWORKING PLANTS

Ala., McDowell.—Veneer.—American Veneer Co., Cleveland, Ohio, will build factory; mill construction buildings costing \$10,000; machinery for daily capacity 20,000 ft. logs, product wire bound box veneer; purchased machinery.

Ark., Montrose.—Spokes, etc.—Archibald Wheel Co., of Lawrence, Mass., is reported to establish plant to manufacture spokes and other wheel stock; purchased machinery.

Fla., Miami.—Novelties.—W. D. Horne will erect concrete building for planing mill and novelty works.

Ga., Macon.—Veneer.—Macon Veneer Co., capital \$30,000, inceptd. by Jas. T. Wright, W. A. Roush, Geo. W. Hubbell and S. J. Gye.

Ky., Maysville.—Chairs.—E. A. Robinson & Co., capital \$50,000, inceptd. by E. A. Robinson, W. N. Stockton and C. B. Holstein.

Md., Baltimore.—Furniture.—Chesapeake Furniture Co. leased 3-story 110x83-ft. building at Barre and Sharp Sts.; will remodel and equip for manufacturing furniture; Sparklin & Childs, Archts., 502 Law Bldg., Baltimore.

Miss., Corinth.—Cooperage.—Nabors Cooperage Co., organized with S. M. Nabors as Mgr.; secured spoke plant and will remodel to manufacture slack barrel headings; purchased machinery.

Miss., Tyler.—Boxes.—S. T. Aicus & Co., New Orleans, La., purchased Tyler-town Box Mfg. Co.'s plant; reported to install additional machinery to double capacity.

Okl., Enid.—Automobile and Wagon Bodies.—Joe Areny will erect 1-story, 75x75 ft. factory building, costing \$5000; for automobile

and wagon bodies; ordinary construction; composition roofing; concrete floors; electric lighting plant; Frank Weller, Contr.; G. J. Cannon & Co., Archts.; both in Beck Bldg., Enid.

S. C., Ailey.—Shingles.—H. V. Thompson & Bro. will install shingle mill. (See Flour, Feed and Meal Mills.)

Tex., Beaumont.—Cooperage.—Texas Cooperage Co., Jake Noodelman, Pres., Houston, plans to establish branch plant in Beaumont. (See Tex., Houston.)

Tex., Houston.—Cooperage.—Texas Cooperage Co., capital \$30,000, inceptd.; Jake Noodelman, Pres.; Joe Becker, V.-P.; Chas. M. Kapner, Secy.-Treas.; establish branch plant at Beaumont.

Tex., Texarkana.—Cooperage.—Gulf Cooperage Co., will erect additional shop building, 100x200 ft.; install machinery including electrical equipment.

FIRE DAMAGE

Ala., Oakman.—R. C. Robinson & Co.'s store and warehouse, C. P. Chavert's store, Cannon & Karrh's warehouse and other buildings; loss \$40,000.

Ark., Bebee.—Mrs. J. L. Brady's residence on Main St.

Ala., Selma.—W. D. McCurdy's gin; loss, \$15,000.

Ark., Hot Springs.—St. Charles Hotel; loss \$30,000; Associated Charities Home also damaged.

Fla., Fort Pierce.—W. P. Sloan's residence.

Ky., Perryville.—Perryville Electric Lighting & Ice Co.'s plant; loss \$15,000.

BUILDING NEWS

BUILDINGS PROPOSED

APARTMENT-HOUSES

Fla., Tampa.—Dr. H. Hampton is having plans prepared by Bonfoey & Elliott, Tampa, for apartment-house; frame; 6 suites; cost \$15,000.

Fla., Miami.—Dr. W. S. Gramling will erect store and apartment building. (See Stores.)

Fla., Miami.—W. T. Carter will erect store and apartment building. (See Stores.)

Ga., Savannah.—M. Kaplan will convert 3-story brick building into apartment-house.

Ky., Lexington.—Clarence T. Whitt, 219 E. High St., will erect 12-room flat on Grosvenor Ave.; brick; shingle roof; oak floors; electric lights; cost \$4000; hot air heat, \$300; plans and construction by owner.

Md., Baltimore.—McGraw Tire Co. will erect store and apartment-house. (See Stores.)

Md., Baltimore.—John J. Carlin has plans by Stanislaus Russell, 2900 Clifton Ave., Baltimore, for 3-story store and apartment building on Pimlico Circle; main structure 70x45 ft.; 2 wings 70x41 ft. each; entrance to 6 stores through covered arcade; brick; mable or limestone trimmings; low mansard green tile roof; hardwood and tile floors; community heat; cost \$75,000.

Mo., Kansas City.—R. Smith will erect 10-suite frame apartment building; cost \$4800.

Mo., Kansas City.—Hoffman Bros., 524 Ridge Bldg., have plans by W. H. Smith, 518 Massachusetts Bldg., Kansas City, for apartment-house; 30x129 ft.; brick; roofing not determined; oak floors; cost \$35,000; Kewana heating system, \$2000; gas and electric lights, \$1000; construction, by day labor, begun. Address B. T. Hoffman, 524 Ridge Bldg. (Lately noted.)

Mo., Kansas City.—Edgar S. Madorie will erect apartment-house; 4 stories; 8 suites; cost \$12,000.

Mo., St. Louis.—Trade Realty Co., 819 Chestnut St., will erect several apartment-houses; 54x76 ft.; fireproof; cantineated roof; tile rib floors; cost \$30,000 each. (Lately noted.)

Mo., St. Louis.—Garden Bros. will erect two 6-suite apartment-houses; cost \$30,000.

Mo., St. Louis.—Chas. F. Levy will erect two 3-story apartment buildings, 5636 Waterman Ave. and 323 Clara Ave.; cost \$50,000.

Mo., St. Louis.—Julius Haller and Albert J. Francis will organize company to erect apartment-house at 5159 Delmar Ave.

Tenn., Chattanooga.—Jr. O. U. A. M. will erect lodge, apartment and store building. (See Association and Fraternal.)

Tex., Beaumont.—John N. Gilbert will re-

La., Shreveport.—Shreveport Transfer & Livery Co.'s barn addition; loss \$30,000.

La., Labadieville.—L. J. Himel's residence; loss \$7000.

Md., Pocomoke City.—Francis M. Wilson's cannery and lumber-storage plant; reported loss \$10,000.

Miss., Clinton.—Mrs. Mary Casey's residence; loss \$5000.

Miss., Natchez.—Residence owned by Louis Fry and L. Goldberger; loss \$4000.

Miss., Yazoo City.—American Steam Laundry; loss \$3000.

N. C., Monroe.—Bishop Doster's residence near Mt. Carmel; loss \$3200.

Tenn., Crockett Mills.—Mrs. Fannie Powell's residence.

Tenn., Jellico.—James Taylor's residence in South Jellico.

Tenn., Sewanee.—P. S. Brooks & Co.'s building and 2 other structures; loss \$10,000.

Tex., Snyder.—Woodrow Hotel.

Tex., Waxahachie.—L. E. McLain's residence; loss \$4000.

Va., Bedford City.—Jas. Parrish's residence.

Va., Lynchburg.—T. J. Powell's residence; loss \$7500.

W. Va., Page.—Loup Creek Colliery Co.'s coal tipple.

W. Va., Welch.—Building owned by R. L. Hutson, occupied by John Vaden; loss \$3500.

DAMAGED BY STORM

Ga., Dublin.—Baker School Building. Address School Trustees.

model residence for apartment-house. (See Stores.)

Tex., El Paso.—Maurice J. Cope opens bids June 30 to erect apartment-house on North Oregon St.; 50x120 ft.; 3 stories; ordinary construction; Barrett roof; red oak floors; cost \$25,000; steam heat, \$3000; Trust & Trust, Archts., El Paso. (Lately noted.)

Tex., El Paso.—Robert and Julius Kraemer will erect store and apartment building. (See Stores.)

Tex., Paris.—W. F. Dulaney & Sons are having plans prepared for apartment-house; Spanish mission style; electric lights.

Tex., Waco.—S. T. Lewis is having plans prepared by Geo. Barnett, Waco, for apartment-house; frame; gravel roof; hardwood floors; electric fixtures.

Va., Norfolk.—C. V. Carver, 28th St., will erect 4-family apartment-house on De Bree Ave.; brick; gravel roof; wood and concrete floors; Latrobe stoves; cost \$6000; plans and construction by owner. (H. A. Williams lately noted to erect this building.)

ASSOCIATION AND FRATERNAL

Ala., Huntsville.—Abingdon Y. M. C. A. will erect building to replace structure lately burned with loss of \$30,000.

Ala., Montgomery.—Masonic Home, Ben. M. Jacobs, Chrmn., 2012 Third Ave., Birmingham, is having plans prepared by Frank Lockwood, Montgomery, for school building; 2 stories; cost \$15,000; will call for bids in about 2 weeks. (Lately noted.)

Ga., Columbus.—Rose Hill Lodge, I. O. O. F. will erect store and lodge building; brick; cost \$2500; A. B. Brown and Wesley Russell, Com; will let contract in 60 days. BK. & OFF.

Ga., Columbus.—I. O. O. F. will erect lodge building; 3 stories; brick; lower floors for offices; cost \$25,000.

La., Lafayette.—A. F. & A. M. have plans by G. B. Knapp, Lafayette, for lodge and clubhouse. Address The Secretary.

La., New Orleans.—Jerusalem Temple, Nobles of the Mystic Shrine, has plans by Emile Weil and Sam Stone, Jr. (associate), New Orleans, for building; 120x120 ft.; fireproof; steel and reinforced concrete; cost \$150,000; bids opened in about 60 days. (Lately noted.)

Miss., Meridian.—Grand Chapter, Eastern Star of Mississippi, has plans by P. J. Krouse, Meridian, for assembly hall at Children's Home; 65x70 ft.; brick veneer and stone; slate roof; hardwood floors; steam heat from present plant; electric lights; cost \$7000; specially designed stained glass win-

dows; date opening bids not set. Address O. L. McKay. (Lately noted.)

Mo., St. Louis.—North Side Department of St. Louis Y. M. C. A., Louis Boeger of North St. Louis Savings Trust Co., Pres., plans to erect \$300,000 building; 4 stories; basement and roof garden; 100x134 ft.; vitrified brick and terra-cotta; fireproof, etc.

Okl., Francis.—A. F. & A. M. will erect business and lodge building.

S. C., Rock Hill.—Home.—B. P. O. E. Lodge No. 1318, W. G. Stevens, Chrmn., will erect home and hotel building; cost \$50,000.

Tenn., Chattanooga.—Jr. O. U. A. M. has plans by Clarence T. Jones, Chattanooga, for lodge building in North Chattanooga; 3 stories and basement; brick; cost \$10,000 to \$12,000; third floor, lodge rooms; second, apartments; first, store rooms.

Tex., Harper.—W. O. W. will erect 2-story business and lodge building; cost \$3000.

Tex., Waco.—Missouri, Kansas & Texas Ry., L. F. Lonnbladh, Ch. Engr., Dallas, acquired Hotel Bellhead; will remodel and erect addition to building for Y. M. C. A. at a cost of \$5000.

BANK AND OFFICE

D. C., Washington.—Southern Ry. Co., W. H. Wells, Ch. Engr. Construction, is having plans prepared by Milburn, Heister & Co., 710 14th St., N. W., Washington, for office building; 9 stories; 12x110 ft.; steel frame; fireproof; slag roof; tile arches; steam heat; electric lights; cost \$500,000; plans ready for contractors about Aug. 1. (Lately noted to have let contract for steel.)

D. C., Washington.—Frank G. Carpenter will remodel store and office building. (See Stores.)

Fla., Clearwater.—Bank of Clearwater rejected all bids to erect store, office and bank building; will revise plans to bring cost within \$30,000 or \$35,000. (Lately noted.)

Fla., Miami.—Ray Biscayne Co. will erect office, store and theater building. (See Theaters.)

Fla., Orlando.—Bank of Orange has plans by J. F. Ange, Orlando, for bank building; brick; metal roof; tile floors; electric lights; 40x60 ft.; cost \$3800; materials purchased; construction by day labor. (Lately noted.)

Ga., Columbus.—I. O. O. F. will erect lodge and business building. (See Assn. & Frat.)

Ga., Rockmart.—Bank of Rockmart has plans by A. Ten Eyck Brown, Forsyth Bldg., Atlanta, for bank building; 30x45 ft.; 1 story; face brick; terra-cotta trimmings; composition roofing; plans ready about July 25.

Ky., Maysville.—Union Trust & Savings Co. and Bank of Maysville merged; will erect building or remodel building of Bank of Maysville. Address J. F. Barbour or N. S. Calhoun, care of Bank of Maysville. (See Machinery Wanted—Building Materials—Safes.)

N. C., Fayetteville.—Stein Bros. will erect store and office building. (See Stores.)

N. C., Snow Hill.—First National Bank has plans by S. B. Moore, Wilson, N. C., for bank and office building lately noted; 22x30 ft.; tile roof and floors. Address C. M. Mendenhan. (See Machinery Wanted—Bank Fixtures.)

Tenn., Nashville.—Dave Lowenheim will erect office building.

Tenn., Nashville.—Standard Property Co. has plans by Marr & Holman, Stahlin Bldg., Nashville, for doctors' office building; 31x140 ft.; reinforced concrete construction; asbestos roof; reinforced concrete floors; cost \$75,000; heating plant \$10,000; elevators \$5000. (J. O. Leake and others lately noted to open bids June 2 to erect doctors' office building.)

Tenn., Springfield.—Springfield National Bank has plans by Thos. W. Gardner and Edw. E. Dougherty, 726 Stahlin Bldg., Nashville, for bank building; 2 stories; brick and terra-cotta; date opening bids not set.

Tex., Gilmer.—C. A. Dyke has plans for store and office building. (See Contract Awarded—Dwellings.)

Tex., Waco.—Roy E. Lane, Waco, is preparing plans for bank building; brick; metal ceiling and partitions; cost \$30,000.

Va., Ivor.—Bank of Ivor, with \$25,000 capital, will erect bank building; 22x40 ft.; brick and stone; slate roof; concrete floors; cost \$25,000; M. P. Andrews, Archt., Petersburg, Va.; bids opened about July 1; construction begins about July 15. L. H. Drantley, Pres., and L. C. Pulley, Cash.

CHURCHES

Ark., Camden.—Jewish Congregation will improve synagogue; Lee Berg, A. Lazarus and A. Felsenthal, Com.

Ark., Forrest City.—Methodist Church is having plans prepared by John Gaisford, Memphis, Tenn., for building; brick; stone trim; classic style; Rev. J. S. E. Bates, Pastor.

Ark., Texarkana.—First Methodist Episcopal Church, South, Rev. P. C. Fletcher, Pastor, has plans by Witt & Seibert, Texarkana, for Sunday-school auditorium; 2 stories; exterior white stucco; classic style; red tile roof; white pine floors; heating and lighting not decided; concrete walks; cost \$18,000; contract let in several days. Address J. A. Buchanan, State Bank Bldg. (Lately noted.)

Ark., Prairie Grove.—Presbyterian Church will erect building. Address The Pastor.

Fla., Lakeland.—Methodist Church will not erect building; late report erroneous.

Fla., Stuart.—Methodist Church will erect building; cost about \$6000, exclusive of interior equipment, stone and cement. Address The Pastor.

Ga., Macon.—First Christian Church will erect Sunday-school; cost \$3000. Address The Pastor.

Ga., Marshallville.—Baptist Church will complete building; interior to be finished now; install steam heating plant, seating and furnishings; total cost \$18,000; P. E. Dennis, Archt., American National Bank Bldg., Macon.

Ga., Unadilla.—Baptist Church will enlarge and remodel building; extend auditorium and erect Sunday-school department; brick; 8 or 10 classrooms; probably install seating. Address The Pastor.

Ky., Louisville.—St. Paul Evangelical Church will erect \$6000 addition to building. Address The Pastor.

La., Arcadia.—Baptist Church has plans by J. E. Greene, 508 American Trust Bldg., Birmingham, Ala., for building; 65x65 ft.; ordinary construction; tin shingle roof; pine floors; warm-air heat; electric lights; cost \$9000; bids opened July 1; construction begins July 15. Address Rev. J. T. King, Pastor.

Miss., Grenada.—Central Baptist Church (lately noted at Batesville, Miss.) will erect building; 60x60 ft.; brick veneer; roofing not decided; possibly hardwood floors; cost \$7000; bids opened about July 10; J. E. Greene, probable architect, Birmingham. (See Machinery Wanted—Heating Plant; Electric-light Fixtures; Steel Ceiling.)

Mo., St. Louis.—West Presbyterian Church, Rev. Dr. Francis W. Russell, Pastor, will erect \$75,000 building to replace burned structure.

Mo., St. Louis.—Hamilton Avenue Christian Church will erect \$25,000 addition to building. Address The Pastor.

N. C., Charlotte.—First Presbyterian Church has plans by J. M. McMichael, Charlotte, for Sunday-school building; Gothic style; 7 departments; memorial window 6x12 ft.; cost \$25,000. (Lately noted.)

Okla., McAlester.—Phillip's Memorial Methodist Episcopal Church, South, will erect building; cost about \$35,000; Smith & Parr, Archts., Oklahoma City; bids opened June 27. (Previously noted.)

Okla., Eldorado.—Presbyterian Church will erect building. Address The Pastor.

Okla., Yale.—Baptist Church will erect building. Address The Pastor.

S. C., Newberry.—West End Baptist Church will erect building to replace burned structure. Address The Pastor.

Tenn., Knoxville.—First Baptist Church, Rev. Len G. Broughton, pastor, will erect 56-ft. addition to rear; dead wall at front of building; additional gallery space; lighting, etc.

Tenn., Memphis.—Decatur Street Christian Church will erect basement and install heating plant to cost \$2500 which will be initial work on \$15,000 building to be erected next year. Address The Pastor.

Tenn., Memphis.—Evergreen Presbyterian Church has plans by Hubert T. McGee, Memphis, for Sunday-school addition; chapel and class rooms for 250 pupils; brick; stone trim; concrete foundation; tile roof; cost \$5000.

Tenn., Memphis.—Decatur Street Christian Church, Rev. Albert R. Adams, Pastor, 925 Leon Place, will erect church and Sunday-school; brick; slate roof; hot-air heat; electric lights; cost \$15,000; begin construction on basement Sept. 1, main building Mar. 1. (Lately noted.)

Tenn., Sevierville.—Presbyterian Church, U. S. A., Rev. J. H. Wright, pastor, will erect building; cost \$4000 to \$5000; Rev. Robt. I. Gamon, Field Supt. Presbytery, Union, Tenn., authorized to secure Archt.

Tex., Brownwood.—Methodist Church will erect \$40,000 building. Address The Pastor.

Tex., Brownwood.—First Baptist Church will erect building; Atlanta tabernacle design; cost \$25,000. Address The Pastor.

Tex., Galveston.—Temple Congregation, B'Nai Israel, is having plans prepared by A. J. Ellis, Galveston, to remodel building; will erect 1-story brick assembly room, 45x48 ft.; remodel basement for classrooms; install heating system; cost \$15,000. (Noted in Jan.)

Tex., Henrietta.—First Methodist Church will erect building; brick and terra cotta; gravel roof; metal dome; steam heat; Geo. Burnett, Archt., Waco, Tex. (Previously noted.)

Tex., Paris.—Church of the Holy Cross will erect building. Address The Pastor.

Tex., Plainview.—First Presbyterian Church, Rev. T. B. Haynie, Pastor, will erect building; cost \$10,000.

Tex., Port Arthur.—M. C. Parker, Beaumont, prepared plans for colored church; 60x74 ft.; frame; wood floors; shingle roof; rolling partitions; cost \$6000.

Tex., Terrell.—First Christian Church will erect building; cost \$5000. Address The Pastor.

Va., Salem.—Salem Lutheran Church, Rev. C. H. Day, pastor, will erect building; brick; seating capacity 600.

W. Va., Parkersburg.—Ohio Avenue Methodist Episcopal Church will erect building at Pottery Junction; brick; cost \$18,000 to \$20,000. Address The Pastor.

CITY AND COUNTY

Fla., Tampa.—Park Building.—Board of Public Works, Allen Thomas, Secy., has plans by A. L. Shaw, American National Bank Bldg., Tampa, for \$5000 park building; concrete.

Miss., Gulfport.—Library.—City has plans by Nolan & Torre, 415 Hennen Bldg., New Orleans, for Carnegie Library; 43x51 ft.; ordinary press brick construction; composition roof; cost \$9000; heating, \$600; date opening bids not set. (Lately noted.)

Mo., Huntsville.—Poor Farm.—Randolph County voted \$30,000 bonds for poor farm. Address County Supervisors.

Mo., Kirksville.—Infirmary.—County will erect infirmary. (See Hospitals.)

Mo., Leeds-Reformatory.—City has plans by Root & Siemens, Scarritt Bldg., Kansas City, Mo., for reformatory; plans call for administration building and 2 cottages; concrete; cost \$50,000.

N. C., Fayetteville.—Home.—T. G. McAllister, Chrmn., County Comms., receives bids to repair Cumberland County Home lately damaged by storm; also to construct Reeves' Bridge.

Okla., Collinsville.—Library.—Carnegie Library Board receives bids until June 26 to erect library; plans and specifications at office J. H. Middleton and H. C. Bollman, Collinsville.

Okla., Madill.—Fair.—Park Commission, Jas. Ross, Secy., will erect 5 fair buildings, 50x100 ft., 50x50 ft., 34x101 ft., 34x50 ft. and 26x50 ft.; iron clad construction; 2-ply rubber roof; dirt floors; bids opened. (Lately noted.)

Okla., Sapulpa.—Library.—City selected H. O. Valen & Co., Phoenix, Ariz., Archts., for proposed Carnegie Library; cost \$22,500; W. H. Harbison, Chrmn., Building Comm. (Previously noted.)

Okla., Woodward.—City Hall.—City will order vote on \$50,000 bonds to erect city hall; about 70x150 ft.; brick; paper and gravel roof; C. D. Hill & Co., Archts., Dallas, Tex.; other details not decided. Address Peter Martinson, Mayor. (Lately noted.)

Tenn., Ashland City.—Jail.—Cheatham County Comms. will erect jail; steel and brick.

Tenn., Morristown.—City Hall and Auditorium.—City will erect city hall and auditorium; 70x117 ft.; 2 stories; brick and stone; architect not selected. Address W. B. Whitaker, Mayor. (Lately noted.)

Tex., Beaumont.—Convention Hall.—Park Board will erect concrete and stucco convention hall and dance pavilion at Magnolia Park; cost \$7000.

Tex., Paris.—Fire Station.—City is having plans prepared by Lang & Witchell and Curtis, Broad & Lightfoot, Paris, for East Side fire station.

W. Va., Martinsburg.—Home.—Berkeley County has plans by C. E. Kent, Martinsburg, for steward's home on county poor farm; 2 stories and basement; 28x32 ft.; brick; slate roof; cost \$1500; bids opened June 27. (Lately noted.)

COURTHOUSES

Ga., Metter.—Chandler County Comms. are considering issuing bonds to erect courthouse and construct roads.

Tex., Sweetwater.—Judge John H. Cochran, Page & Bro., Archts., Austin. (Noted in May.)

courthouse; fireproof; cost \$100,000; separate bids for heating, plumbing and wiring; plans and specifications at office C. H.

DWELLINGS

Ark., Little Rock.—C. D. Hill has plans by Theo. M. Sanders, Little Rock, for 2-story frame residence.

D. C., Washington.—Carl H. Smith, 1321 Biltmore St., N. W., will erect three 2-story brick residences; cost \$12,500.

D. C., Washington.—D. J. Partello has plans by Merrill T. Vaughn, Woodridge, D. C., for 2-story frame dwelling; cost \$5500.

D. C., Washington.—Geo. Y. Worthington has plans by A. E. Landvoigt, Woodward Bldg., Washington, for six 2-story brick residences, 1419-1421 Maryland Ave. N. E. and 1418-1424 G St. N. E.; cost \$8500.

D. C., Washington.—F. T. Schneider, 1314 F St., N. W., will erect 2-story brick residence; cost \$6000.

D. C., Washington.—Harry A. Kite, 1338 G St. N. W., has plans by A. E. Landvoigt, Woodward Bldg., Washington, for 3 dwellings on 13th St. N. E.; 16.6x30 ft.; brick and frame; slag roof; oak and pine floors; cement sidewalks; cost \$7500; hot-air heat, \$450; electric and gas lights, \$300; construction by owner, who may be addressed. (Lately noted.)

D. C., Washington.—John M. Henderson has plans by A. E. Landvoigt, Woodward Bldg., Washington, for 4 residences; 2 stories; brick; cost \$12,000.

D. C., Washington.—J. S. Gruver has plans by Geo. T. Santmyers, 216 Kenosia Bldg., Washington, for 7 residences, 3904-14 and 3905-07 Kansas Ave. N. W.; 2 stories; brick; cost \$22,600.

D. C., Washington.—J. Tolchinsky has plans by Israel Diamond, 539 Irving St. N. W., Washington, for residence; 2 stories; brick; cost \$5250.

D. C., Washington.—P. W. Calfee, 1616 Longfellow St. N. W., will erect 2-story hollow tile residence; cost \$7200.

D. C., Washington.—R. E. L. Thompson, 1939 34th St., N. E., has plans by J. H. Laner, for 2-story brick dwelling; cost \$3000.

D. C., Washington.—Wm. C. Blundon, 15 Rhode Island Ave. N. W., has plans by S. T. Williams for three 2-story brick dwellings; cost \$10,500.

Fla., Clearwater.—A. W. Underwood, Chicago, has plans by J. H. Hilkene, Clearwater, for \$12,000 residence at Harbor Oaks; Spanish style; construction in charge of architect.

Fla., Clearwater.—Mrs. William Bucknell will erect residence at Harbor Oaks.

Fla., Fort Myers.—Dr. A. C. Taylor, Sioux City, Iowa, is reported to erect residence in Poinciana Park.

Fla., Fort Myers.—L. J. Farinholt will erect residence; bungalow style.

Fla., Homestead.—Sam McKinstry will erect residence.

Fla., Homestead.—M. S. Studstill will erect 5-room bungalow.

Fla., Homestead.—J. U. Free will erect residence and 3 bungalows.

Fla., Leesburg.—John A. Statler, Johnstown, Pa., is reported to erect residence.

Fla., Miami.—G. W. Gardiner will erect \$6000 residence.

Fla., Palatka.—F. W. Wilson, care of Wilson Cypress Co., is having plans prepared by W. B. Camp, Board of Trade Bldg., Jacksonville, for residence; 2 stories; cypress shingles and siding; tile roof; hot-water heat; hardwood floors; tiled baths; cost \$10,000; owner will purchase materials and let contract.

Fla., St. Petersburg.—C. R. Hall will erect store and residence. (See Stores.)

Fla., St. Petersburg.—G. G. Wheatley will erect 6-room residence.

Fla., St. Petersburg.—H. H. Hanson will erect 6-room residence.

Fla., West Palm Beach.—O. W. Griggs will

erect residence; 10 rooms; 2 stories; cost \$3500.

Ga., Atlanta.—David Woodward does not contemplate erecting dwelling lately noted.

Ga., Atlanta.—B. F. Coggins, Pres., Coggins Marble Co., Canton, Ga., acquired 3-acre tract on Pace's Ferry Road and will erect residence.

Ga., Augusta.—Marion Jones is having plans prepared by Thos. M. Campbell, Augusta, for residence; 2 stories; frame and hollow tile; cost \$6000.

Ga., Augusta.—Milledge Murphy is having plans prepared by Thos. M. Campbell, Augusta, for residence; 2 stories; 8 rooms; stucco; cement tile roof; hot water heat.

Ga., Augusta.—John Murphy will erect residence; Thos. M. Campbell, Archt., Augusta.

Ga., Augusta.—Luther Arrington is having plans prepared by Thos. M. Campbell, Augusta, for residence; 6 rooms; brick; garage; cost \$5000.

Ga., Augusta.—Dr. W. H. Goodrich is having plans prepared by Goodrich, Hoefler & Clark, 401 Harrison Bldg., Augusta, for residence; brick; slate roof; hot-water heat; hardwood floors; tile porches and bathrooms.

Ga., Augusta.—Herbert Salsbury has plans by Thos. M. Campbell, Augusta, for residence; 2 stories; 8 rooms; stucco; hot water heat; cost \$7000 to \$8000.

Ga., Augusta.—Mrs. Grace Perkins is having plans prepared by Goodrich, Hoefler & Clark, 401 Harrison Bldg., Augusta, for residence; stucco; slate roof; steam heat; hardwood floors; tiled porches and baths.

Ga., Augusta.—H. T. E. Wendell, Leonard Bldg., Augusta, is preparing plans for residence; 2 stories, basement and attic; 72-ft. front; tapestry brick; slate roof; hardwood floors; heating not decided; cost \$15,000.

Ga., Augusta.—J. B. Story, 215 Montgomery Bldg., Augusta, is preparing plans for 2-story frame residence for client; metal roof; hardwood floors; cost \$50,000; contract soon let; also preparing plans for residence for another client; 2 stories; frame; metal roof; hardwood floors; cost \$5000.

Ga., Augusta.—Miss Mary C. Cuthbert has plans by C. L. Whaley, 414 Harrison Bldg., Augusta, for residence; frame and stucco; 1½ stories; electric lights; furnace heat; hardwood floors; roofing not decided; cost \$6000.

Ga., Dalton.—Dr. J. C. Rollins will erect residence.

Ga., Macon.—H. M. Wortham will remodel and enlarge residence; will stucco exterior, provide tile verandas, etc.; is taking bids; Curran R. Ellis, Archt., Ellis Bldg., Macon.

Ga., Savannah.—Wilbur M. Coney will erect residence.

Ga., Savannah.—Davis Ficklin, trustee, will erect 2-story frame building.

Ga., Washington.—Edgar Smith has plans by Blackley & Irvin, 9 King Bldg., Augusta, Ga., for 1-story frame residence; bungalow style; cost \$3000.

La., Clarks.—Louisiana Central Lumber Co. will remodel residence of C. E. Slagle, Gen. Mgr. (See Hospitals.)

Md., Baltimore.—E. Mitchell Sturtevant, 256-61 Title Bldg., will erect residence at Lenox.

Md., Baltimore.—Windsor Realty Co., 3013 Walbrook Ave., has plans by Stanislaus Russell, 2900 Clifton Ave., Baltimore, for residence at Windsor Ave. and Ellamont St.; 32x66 ft.; brick; slate or slag roof; wood floors; steam heat; gas and electric lights; cost \$16,000; construction by owner, who may be addressed. (Jas. A. Paige lately noted to erect this dwelling.)

Md., Baltimore.—Geo. A. Cook, 2900 Guilford Ave., has plans by Wm. B. Gorwitz, 1028 N. Fulton Ave., Baltimore, for 32 dwellings; 15x45 ft.; brick; tin roofs; steam heat; electric and gas lighting; cost \$45,000; construction by owner. (Lately noted.)

Md., Baltimore.—Dr. John Davis, 1200 Cathedral St., will erect residence on Park Heights Ave.

Md., Baltimore.—Philip Silbert, 115 N. Broadway, has plans by Callis & Callis, 255 Kennedy Ave., Baltimore, for 3 residences on 34th St.; 14x16 ft.; 2 stories; brick; cost \$1200.

Miss Meridian.—T. D. Case will erect \$4000 residence.

Mo., Kansas City.—Hollyman Realty Co. will erect 4 frame dwellings; cost \$8000.

Mo., Kansas City.—D. T. Miller will erect 3 2-story brick-veneer dwellings; cost \$9000.

Mo., Kansas City.—Sterling Morton, Mgr., Morton Salt Co., is having plans prepared

by Shepard, Farrar & Wiser, Kansas City, for residence in Sunset Hill.

Mo., Kirksville.—Winn & Jones will erect residence Washington and Mulnix Sts.

Mo., St. Louis.—Leisner Realty Co. will erect 2 residences; 2 stories; brick; cost \$10,000; construction by owner.

Mo., St. Louis.—J. A. Davis will erect 2-story brick residence; cost \$5000; construction by owner.

N. C., Charlotte.—Walter Lambeth will erect residence; frame; hardwood floors in part; cost \$10,000; construction begins about Sept. (Lately noted.)

N. C., Charlotte.—E. L. Barkley has plans by Louis H. Asbury, Charlotte, for \$3500 residence; 6 rooms.

N. C., Clayton.—Liberty Cotton Mills is erecting 8 cottages for operatives.

N. C., High Point.—Frank Wineski has plans by Northrup & O'Brien, Winston-Salem, for residence; 70x50 ft.; stone-vener frame; tile roof; hardwood floors; tile porch floors; no general contract; owner will let subcontracts. (Lately noted.)

N. C., Raleigh.—Graham Andrews has plans by Jas. A. Salter, Commercial Bank Bldg., Raleigh, for residence; brick and frame; tile roof; oak and tile roof; vapor heat; cost \$20,000; bids opened July 10. Address contractor. (Lately noted.)

N. C., Statesville.—Dr. Ross S. McElwee has plans by Louis H. Asbury, Charlotte, N. C., for residence; 10 rooms; hollow tile; tile roof; parquet flooring; hot-water heat; electric lights; cost \$10,000.

N. C., Winston-Salem.—J. B. Walker will erect 8-room frame residence; cost \$3000; day labor.

N. C., Winston-Salem.—J. S. Firey will erect 10-room frame residence; cost \$3000; day labor.

N. C., Winston-Salem.—J. L. Lashmit has plans by Humphreys & Faw, Winston-Salem, for semi-bungalow; 33x45 ft.; hot air heat; cost \$3500.

N. C., Winston-Salem.—Mrs. R. M. McArthur will expend \$3000 to alter dwelling; Humphreys & Faw, Architects, Winston-Salem.

N. C., Winston-Salem.—P. O. Leak has plans by Humphreys & Faw, Winston-Salem, for bungalow; 34x40 ft.; furnace; electric lights and gas; cost \$3250.

N. C., Winston-Salem.—Wm. Clinard is having plans prepared by Humphreys & Faw, Winston-Salem, for 3 dwellings; brick and frame; cost about \$10,000.

Okla., Curtis.—H. C. Weisbrod will erect residence.

Okla., Eufaula.—W. B. Young will erect residence.

Okla., Oklahoma City.—John McKinney will erect 1-story frame residence; cost \$3000.

Okla., Oklahoma City.—Nichols & Chandler will erect residence; 1-story; frame; cost \$3000.

Okla., Oklahoma City.—Seamans & Kanaga will erect two 1-story residences; cost \$4000.

Tenn., Bristol.—Jas. T. Sapp is having plans prepared by Curran R. Ellis, Ellis Bldg., Macon, Ga., for \$3500 bungalow.

Tenn., Memphis.—John H. Davis will erect residence; 2 stories; brick veneer; 16 rooms; cost \$7000.

Tenn., Memphis.—A. L. Dabney will erect 6 residences; cost \$5000.

Tenn., Memphis.—Harry Horn will erect residence; stone construction; cost \$25,000.

Tenn., Memphis.—R. D. Goodwin has plans by W. C. Lester, Memphis, for bungalow; cost \$3500.

Tenn., Memphis.—W. C. Chandler will erect 3 residences; cost about \$8000.

Tenn., Nashville.—J. W. Hillington will erect 1½-story brick veneer residence; cost \$4000.

Tenn., Nashville.—J. H. Cooksey will erect dwelling; 1½ stories; brick veneer; cost \$3500.

Tenn., Nashville.—Mrs. L. E. Archibald will erect 2 residences; brick veneer; cost \$7000.

Tenn., Nashville.—Robt. Smith will erect bungalow; brick veneer; cost \$3700.

Tex., Austin.—Kills Campbell will erect 2-story residence; frame and stucco; cost \$3500.

Tex., Austin.—Mrs. M. Z. King has plans by Edwin C. Kreisle, 820 Scarbrough Bldg., Austin, for residence; 2 stories; 8 rooms; 32x33 ft.; electric lights; edge grain pine floors; frame; cost \$3500.

Tex., Austin.—Dr. S. N. Key has plans by Kuehne, Chasey & Glesecke, Austin, for dwelling; 6 rooms; frame and stucco; shingle

roof; hot-air heat; cost \$4500; bids opened about July 1.

Tex., Austin.—Dr. E. T. Miller has plans by Kuehne, Chasey & Glesecke, Austin, for dwelling; 6 rooms; brick veneer; shingle roof; hot-air heat; cost \$4000.

Tex., Austin.—Herbert Finch has plans by Kuehne, Chasey & Glesecke, Austin, for dwelling; 8 rooms; frame; shingle roof; hot-air heat; cost \$6000; bids opened July 1.

Tex., Beaumont.—John N. Gilbert will erect \$20,000 residence. (See Stores.)

Tex., Bonham.—D. W. Sweeney is having plans prepared by Sparger & Peters, Bonham, for residence; 2 stories; 10 rooms; brick; steel lintels; asphalt shingle roof; hardwood and pine floors; electrical fixtures; cost \$7000.

Tex., El Paso.—Phoenix-El Paso Bldg. Co. will erect residence; cost \$5000.

Tex., Fort Worth.—Rhodes-Dines Building Co. will erect 1-story 7-room brick veneer residence 2250 6th Ave.; cost \$4750; construction by owner.

Tex., Paris.—Albert Gullick will erect residence; Lang & Witchell and Curtis, Broad & Lightfoot, Architects, Paris.

Tex., Paris.—Dr. Jos. Meyer plans to rebuild brick residence on Main St.; electric lights.

Tex., Paris.—G. W. Smiley will erect residence; Lang & Witchell and Curtis, Broad & Lightfoot, Architects, Paris.

Tex., Paris.—Jack Bankhead is having plans prepared by Lang & Witchell and Curtis, Broad & Lightfoot, Architects, Paris, for residence; electric fixtures.

Tex., Paris.—J. C. Dunagan will erect stone residence; plans in progress.

Tex., Paris.—John Hackel will erect 2-story residence.

Tex., Paris.—H. H. McClannahan is having plans prepared by Lang & Witchell and Curtis, Broad & Lightfoot, Architects, Paris.

Tex., Paris.—Myer Rhine will erect residence; electric fixtures; Lang & Witchell and Curtis, Broad & Lightfoot, Architects, Paris.

Tex., Victoria.—H. A. Lawrence, Jr., is having plans prepared by Jul Lefland & Son, Victoria, for residence; 6 rooms; frame; 41x48 ft.; cost \$3000.

Tex., Sour Lake.—Tip Merchant has plans by M. C. Parker, Beaumont, for residence; 2 stories; 8 rooms; frame; shingle roof; wood floors; cost \$5000; contractor to purchase materials.

Va., Danville.—John Ferrell is reported to erect 3 dwellings.

Va., Danville.—Roger Swain will erect two dwellings.

Va., Norfolk.—Dr. E. A. Land has plans by Louis R. Moss, Norfolk, for residence in West Ghent; 2 stories and basement; brick and frame.

Va., North Holston.—E. E. Judkins will erect residence; 7 rooms; bungalow style; E. C. Roberts, Archt., Saltville, Va.; day labor. Address owner. (See Machinery Wanted—Building Materials.)

Va., Roanoke.—G. L. Kilg will erect residence; 2 stories; brick-cased; cost \$3000.

Va., Richmond.—Mrs. M. S. Lillis will erect frame residence; cost \$4800.

Va., Richmond.—Davis Bros. will erect residences, Grove Ave. and Mulberry St.

Va., Richmond.—J. E. Mitchell will erect frame residence; cost \$4000.

GOVERNMENT AND STATE

La., New Orleans.—Custom House.—Treasury Dept., Jas. A. Wetmore, Acting Supervising Archt., Washington, D. C., receives bids until August 2 to remodel customhouse; at same time for constructing complete (including equipment) 3 interior safety vaults of reinforced concrete; also installing complete electric freight elevator and remodeling 2 electric passenger elevators; plans and specifications at offices Supt. of Construction, Customhouse, New Orleans, and Mr. Wetmore. (See Machinery Wanted—Vaults.)

Okla., Oklahoma City.—Postoffice.—James A. Wetmore, Acting Supervising Archt., Treasury Dept., opened bids to erect postoffice; Dieter & Wenzel Constr. Co., Wichita, Kans., lowest bidder at \$240,500; rejected all bids; will revise plans and call for new bids. (Lately noted.)

Tex., Austin.—Institute.—State is having plans prepared by Kuehne, Chasey & Glesecke, Austin, for dormitory, power plant, dining hall, kitchen and laundry for State Colony for Feeble-Minded, as lately noted; fireproof; tile roofs; concrete construction;

independent heating plant; city lighting; cost \$75,000; bids opened about August 1. (See Machinery Wanted—Sewage-disposal Plant.)

Tex., Belton.—Postoffice.—James A. Wetmore, Acting Supervising Archt., Washington, D. C., opened bids to erect postoffice; Tom Lovell & Sons, Weatherford, Tex., lowest bidders at \$50,722 for limestone; W. G. Carter Co., Chicago, Ill., lowest at \$54,495 for sandstone construction. (Previously noted.)

HOSPITALS, SANITARIUMS, ETC.

Ala., Gadsden.—Gadsden Car Works will erect emergency hospital.

Ark., El Dorado.—El Dorado Hospital Corporation, Dr. S. J. McGraw, Chrmn., has plans by J. W. Smith, Monroe, La., for \$10,000 hospital.

Ky., Lexington.—Fayette County Tuberculosis Sanitarium Trustees are having plans prepared by Anderson & Frankel, Lexington, for central service building and 2 ward buildings to accommodate 16 patients each; cottage type; initial buildings of proposed group.

La., Clarke.—Louisiana Central Lumber Co. will erect hospital; also remodel commissary and residence of C. E. Slagle, Gen Mgr.

Md., Baltimore.—Johns Hopkins Hospital has plans by Archer & Allen, 47-48 Central Savings Bank, Baltimore, for 1-story brick addition to laboratory.

Mo., Kirksville.—County acquired Thomas Burns farm; will erect infirmary; 24 rooms; cost \$16,000. Address County Supervisors.

Mo., Huntsville.—Randolph County voted \$30,000 county infirmary bonds. Address County Commrs.

Tenn., Memphis.—Tri-State Methodist Hospital Bldg. Com., J. H. Sherard, Chrmn., has plans by John Galsford, Memphis, for hospital; main building 7 stories; 4 wings, 5 stories; 40x100 ft.; brick, stone and terra cotta construction; 8 operating rooms; 2 elevators; 500 rooms; cost \$300,000; constructed in units; main building and 1 wing will be erected at present.

Va., Petersburg.—Central State Hospital Directors receive bids until July 5 to erect brick annex 125 ft. high at power plant, brick annex to department for criminal insane and wood annex to department for tuberculosis patients; plans and specifications at office Dr. Wm. F. Drewry, Supt.

Va., Richmond.—Kellam Hospital, Inc., 1617 W. Main St., will erect addition; 38x102½ ft.; 3 stories and basement; 60 rooms; hot and cold water in all rooms; concrete, brick, steel and wood; office annex between old and new structures; 36x32 ft.; 2 stories; cost \$25,000; further information from F. A. Lord, care of hospital as above.

W. Va., Moundsville.—Reynolds Memorial Hospital will erect \$20,000 nurses' home; M. F. Giesey, Archt., Wheeling, W. Va.

HOTELS

Ark., Hope.—Central Hotel has plans by L. Holloman, Hope, to rebuild burned structure.

Ark., Newport.—J. D. Goldman, St. Louis, has plans by Mann & Stern, Little Rock, for 30-room addition to Hazel Hotel. (Wolff-Goldman Realty Co. lately noted to erect addition to building.)

Fla., Fort Myers.—Dr. M. O. Terry will erect addition to Royal Palm Hotel; 90 rooms; also remodel dining-room and kitchen, install electric elevator, etc.; cost \$50,000.

Fla., Zephyrhills.—Zephyrhills Hotel Co. will erect hotel; 11x60 ft.; concrete; electric lighting; cement sidewalks; cost \$12,000; construction begins about July 15; other details not determined; J. F. Stebbins interested.

Ga., Atlanta.—Georgian Terrace Hotel, Jesse Couch, Mgr., has plans by W. L. Stoddard, Atlanta, for roof garden; provide ladies' and gentlemen's dressing-rooms; checkroom, etc.

Ga., Columbus.—Charles Loridans will erect addition to Ralston Hotel; 4 stories; fireproof; concrete skeleton; Barrett specification roof; treated cement floors; steam heat (addition to present system); electric lights; cost \$35,000; construction, by owner, begins July 1. (Lately noted.)

Miss., Greenwood.—Irving Hotel Co. will erect \$100,000 hotel building; contract probably let July 5.

Okla., Ardmore.—J. E. Harp, Dallas, Tex., and others are reported promoting erection of \$150,000 hotel.

Okla., Dewar.—J. H. Braden will erect 2-story hotel building.

Okla., Tulsa.—Edmond L. Fox, 2010 N. Main St., has plans by Davis & Price, Tulsa, for hotel and business building; 50x146 ft.; 4 stories; brick and stone; composition roof; cement and wood floors; construction by owner. (Lately noted.)

S. C., Rock Hill.—B. P. O. E. will erect home and hotel building. (See Association and Fraternal.)

Tex., Dallas.—Charles Cobb, Marshall, Tex., will erect hotel; 75x90 ft.; cost \$35,000.

W. Va., Fairmont.—Fairmont Hotel Co. receives bids until July 10 to erect hotel; 130x210 ft.; 5 stories; steel frame; fireproof; slag roof; flat tile floor arches; steam heat; electric lights and elevators; cost \$350,000; Milburn, Heister & Co., Archts., 710 14th St. N. W., Washington, D. C., may be addressed. (Lately noted.)

MISCELLANEOUS

Fla., Fort Myers.—Clubhouse.—Fort Myers Yacht Club will erect clubhouse; work begins July 1.

Fla., Marianna.—Fair.—J. D. Smith, Prest., West Florida Fair Assn., will erect exhibit buildings at fair grounds.

Fla., Miami.—Oilhouse.—Railey-Milam Hardware Co. will erect concrete block oilhouse.

Fla., Orlando.—Clubhouse.—Röseland Club is having plans prepared by F. M. Curtis and F. O. Adams, Jr., both of Tampa, for clubhouse; probably tile construction; tar and gravel roof; 1 story; balcony 19 ft.; pine trim; assembly-room 45x65 ft., with maple floor; cost \$12,000.

Fla., Tampa.—Market.—A. Nistal, Paul Gasser, Jose Franquez and others will erect public market; 130x200 ft.; reinforced concrete; 186 booths, 9x12 ft.; 60 refrigerator booths; 1 story; cost \$60,000; probably additional stories later.

Ky., Louisville.—Clubhouse.—Pendennis and Tavern clubs merged; will remodel present Pendennis structure or erect building.

Mo., Kennett.—Livery Barn.—O. C. Parks Mule Co. will erect livery and sales barn.

Tenn., Nashville.—Barn.—Union Stock Yards Co. will erect brick and concrete barn; cost \$7000.

Tex., Marlin.—Clubhouse.—A. Edgar Smith will erect building to be occupied in part by Marlin Commercial Club.

Tex., Waco.—Cotton Palace, etc.—Texas Cotton Palace Assn., Tom F. Bush, Prest., will erect addition to coliseum; extend east and west sides 20 ft.; install 1400 additional seats; cost \$6000; also expend \$3500 for additional stock barns.

Va., Richmond.—Undertaking.—Charles J. Billups will erect 3-story brick building for undertaking establishment; cost \$11,500.

RAILWAY STATIONS, SHEDS, ETC.

Ark., Gillett.—St. Louis Southwestern Ry., C. D. Purdon, Ch. Engr., St. Louis, will erect depot.

Ark., Blytheville.—St. Louis Southwestern Ry., C. D. Purdon, Ch. Engr., St. Louis; St. Louis & San Francisco R. R., V. K. Hendricks, Engr., St. Louis, and Jonesboro, Lake City and Eastern R. R., L. C. Gaty, Gen. Mgr., Jonesboro, Ark., will probably erect \$40,000 union station.

D. C., Washington.—Southern Ry. Co. will erect office building. (See Bank and Office.)

Tex., Abilene.—Texas & Pacific Ry. Co., J. H. Ellicott, Genl. Supt., Fort Worth, will erect freight station; 2 stories; brick; 50x200 ft.

SCHOOLS

Ala., Highland Home.—Crenshaw County School Board acquired high-school site and will expend \$5000 for improvements.

Ala., Jasper.—Walker County will erect \$35,000 high school to replace burned structure; W. F. Feagin, Supt. of Education, Montgomery, Ala.

Ala., Mobile.—Mobile County Commrs. ordered vote Aug. 1 on \$150,000 bonds for rural schools. (Lately noted.)

Ala., University.—G. G. Brownwell, Chrmn., Memorial Library Comm., will erect library on unit system at University of Alabama; first unit to cost \$40,000; total cost \$100,000.

Ala., Marion.—Judson College Trustees will expend \$6000 to repair interior of dormitory; plaster and painting; repair doors and windows; replaster entrance halls; oak floors in student parlors, etc.

Ark., Bodcaw.—Trustees have plans by J. H. Bliss, Hope, Ark., for brick school.

Ark., Elmore.—Elmore School Dist. Trustees will erect 2-story frame school building.

Ark., Wabbaseka.—School Board has plans by F. H. Kressig, Pine Bluffs, Ark., for school auditorium addition; brick; metal roof; pine floor; heating and lighting not decided; cost \$2000 to \$4000. Address A. W. Lowe, Pine Bluff, Ark. (Lately noted.)

Ark., Dora.—Judge J. F. Roberts will soon invite bids to erect school building; 2 stories; brick.

Fla., Bartow.—Bartow Special Tax School Dist. No. 17 voted \$20,000 bonds to erect and equip school. Address C. A. Parker, Bartow. (Lately noted.)

Fla., Palatka.—J. D. Cottingham, County School Supt., receives bids until July 3 to repair schools; plans and specifications at office of Mr. Cottingham.

Fla., Sanford.—Supt. of Public Instruction receives bids until July 5 to erect school building; E. J. Moughton, Archt., Sanford.

Fla., St. Petersburg.—Coffee Pot Land Co., H. Walter Fuller, Pres., will expend \$17,000 to complete building for Southern Seminary; completion by October.

Ga., Fitzgerald.—City, David L. Paulk, Clk., is reported to vote on school bonds.

Ga., Atlanta.—Fulton County Commrs. will soon let contract to erect Perkerson and Orchard Knob schools; also plans to erect school in Peachtree Heights.

Ga., Lavonia.—City voted \$5000 bonds to repair and equip school building. Address The Mayor. (Lately noted.)

Ga., Reynolds.—City voted \$20,000 bonds to erect school building; plans by Nesbit, Brown & Dunwoody, Macon, call for 12 class rooms and auditorium; tin roof; steam heat; construction begins Aug. 1. (Lately noted.)

Ga., Reynolds.—City voted \$20,000 bonds to erect school building; plans by Nesbit, Brown & Dunwoody, Macon, call for 12 class rooms and auditorium; tin roof; steam heat; construction begins Aug. 1. Address W. F. Weaver, Reynolds. (Lately noted.)

Ga., Ringgold.—Catoosa County is considering issuing bonds to erect school buildings. Address Chrmn. Board of County Commrs.

Ga., Washington.—City defeated \$10,000 bonds for public school buildings. (Lately noted.)

Ky., Crestwood.—Crestwood Dist. School Trustees have plans by Jno. H. Thomas, Keller Bldg., Louisville, for 1-story school building.

La., Baton Rouge.—School Dist. No. 9 will erect 3 graded school buildings; brick and frame; built-up roof; double wood floors; steam heat in 2. Waterbury stoves in others; electric lighting; cost \$28,000 each; bids opened July 10; Ben J. Goodman, Archt., 833 North Boulevard, Baton Rouge. Address Robt. A. Hart, Chrmn., 44 Lafayette St. (Lately noted.)

La., St. James.—St. James Police Jury appropriated \$6000 for schools.

La., Vinton.—School Board lets contract about July 15 to erect high school; 3 stories; 67.5x100 ft.; 21 rooms; brick, concrete and wood; Barrett specification roof; wooden joists and double floors; cement on first floor; lighting probably from city plant; cost \$25,000; gravity steam heating system, about \$2800; construction begins about July 25; plans ready about July 1; A. H. Humphrey, Archt., Room 1, Bloch Bldg., Lake Charles, La. (Lately noted.)

Mo., Hagerstown.—Washington County School Board has plans by A. J. Klinehart, Hagerstown, for \$5000 brick school in western suburb; will also erect school in eastern section.

Mo., Hagerstown.—School Board selected site for proposed school in west end; 8 or 12 rooms; brick; A. J. Klinehart, Archt., Hagerstown.

Mo., Pittsburg.—Board of Education will remodel Washington school; install sanitary drinking fountains; repair woodwork, etc.

Miss., Woodland.—W. J. Lewis, Chrmn. Board of Education, receives bids until June 30 to erect brick school building; plans and specifications at office of Mr. Lewis.

Miss., Decatur.—Newton County Agricultural High School, Thos. Brand, Secy., has plans by Emmett J. Hall, Daniel Bldg., Jackson, Miss., for dormitory; brick and frame; asphalt shingle roof; wood floors; cost \$6000; bids opened July 1.

Miss., D'Lo.—City, E. A. Ross, Clerk, receives bids until June 30 to erect school building; ordinary construction; composition roof; steam heat; electric wiring; cost \$15,000, exclusive of equipment; plans and specifications at office R. B. Spencer, Archt., Jackson, Miss., and Mr. Ross, as above.

Miss., Ellisville.—City votes July 1 on \$3000 bonds to repair and equip high school; plans by W. P. Croft, Ellisville, call for composition roof; wood floors; J. T. Taylor, Secy., Trustee. (Lately noted.)

Miss., Jackson.—State will expend about \$75,000 to repair Deaf and Dumb Institute lately damaged by storm; Theo. G. Bilbo, Governor.

Miss., Vicksburg.—Warren County Board of Education, J. H. Calkin, Supt., will erect school building; cost \$20,000.

Miss., Olive Branch.—Trustees De Soto County Agricultural High School will let contract July 13 to erect school building; ordinary construction; composition roof; steam heat; electric wiring; cost \$11,000; Raymond B. Spencer, Archt., Jackson, Miss.; plans and specifications may be had from W. D. Gooch, Olive Branch. (Noted in May.)

Miss., West Point.—City lets contract July 11 to erect domestic-science and manual-training building; completion by Sept.

N. C., Asheville.—F. T. Couder, Secy., Treas., receives bids until August 1 to erect high school; plans and specifications obtainable after June 28 from W. H. Lord, Archt., Asheville, or may be examined at City Hall; 257x145 ft.; reinforced concrete frame; brick and tile walls; built-up composition roof; terra-cotta tile floors with reinforced joists and top; mechanical ventilation; indirect heat; conduit wiring for city lighting; cost \$165,346. (Lately noted.)

N. C., Chandler.—Chandler School Dist. Trustees will erect school building.

N. C., Charlotte.—Mecklenburg County Board of Education is reported to receive bids until July 3 to erect 14-room and auditorium school; Hunter & Gordon, Archts., Charlotte.

N. C., Edenton.—J. O. Alderman, County Supt. of Schools, lets contracts July 3 to erect school near Yeopim Church, and about 2½ mi. from Holley's wharf; plans and specifications from J. Y. Joyner, State Supt., Raleigh, N. C., and Mr. Alderman at Edenton.

N. C., Hickory.—City is having plans prepared by J. J. Baldwin, Anderson, S. C., for 8-room school; by J. Gaither Bonnell for 4-room brick colored school. (Lately noted.)

N. C., Salisbury.—City selected site for proposed North Ward School. Address The Mayor.

N. C., Sunbury.—Trustees will erect auditorium and 1 classroom over high-school building; bids opened June 24; L. A. Rountree, Chrmn., and Martin Kellogg, Secy.

N. C., Walnut Grove.—District School Trustees will erect addition to school building; 80x36 ft.; brick; metal roof; cost \$2900; bids opened July 1; construction begins July 25; completion by September. Address P. H. Luville.

Okla., Atoka.—City defeated school bonds; I. L. Cook, Mayor. (Lately noted.)

Okla., Blackwell.—School Board will erect \$10,000 school building.

Okla., Bristow.—District No. 10 voted \$8500 bonds to erect school; School Board lately noted considering election on \$30,000 bonds. Address Dist. School Trustees.

Okla., Rush Springs.—Grady County Commrs. open bids June 25 to erect school in Dist. No. 19; J. A. Corzine, Chrmn. County Commrs., Chickasha, Okla.; plans and specifications at office F. P. Bradley, County Clerk, Chickasha.

Okla., Marshall.—Trustees, G. F. Ingle, Pres., have plans by Bailey & Bailey, Oklahoma City, for school; 70x120 ft.; 2 stories; brick; tile roof; wood floors; steam heat; electric lights; date opening bids not set. (Lately noted.)

Okla., Roland.—Roland School Dist. voted \$5000 bonds to erect school. Address Dist. School Trustees.

Okla., Sapulpa.—Board of Education will not erect school; John W. Young, Secy. (Lately noted.)

S. C., Edgefield.—Racon School Dist. Trustees have plans by Philander P. Scroggs, 652½ Broad St., Augusta, Ga., for school building; 2 stories; brick; tin shingle roof; cost \$7000. Address E. N. Smith, Johnston, S. C.

S. C., Greenville.—Trustees have plans by J. E. Shirrine, Greenville, for school; 61x50 ft.; 1-story and basement; brick; joist floors; slate or tin roof; electric wiring; cost \$8000; central steam heating plant, \$2900; bids opened July 5; construction begins July 10. Address archt. (Lately noted.)

S. C., Lowndesville.—Trustees have plans by Casey & Fant, Anderson, S. C., for school; about 40x50 ft.; brick or brick ve-

neer; metal roof; pine floors; cost \$6500; date opening bids not set. Address T. D. Cooley. (Lately noted.)

Tenn., Columbia.—Board of Education, R. L. Harris, Supt., will erect annex to colored school; cost \$5800.

Tenn., Greenville.—Board of Education is having plans prepared by Manley & Young, 625 Holston National Bank Bldg., Knoxville and Lexington, Ky., for school building; 140x70 ft.; ordinary construction; composition roof; steam heat; cost \$25,000.

Tenn., Park R. Sta., Knoxville.—City voted \$50,000 bonds to erect additions to Park City schools, probably expended as follows: Auditorium, \$30,000; 6-room annex, \$15,000; manual training department, \$5000; J. R. Lowry, Supt. Board of Education.

Tenn., Addison.—Addison Independent School Dist. voted \$7500 bonds to erect school; probably 4 rooms; brick; details not determined; A. B. Needham, Pres. Trustees.

Tenn., Bailey.—Trustees are having plans prepared by Sparger & Peters, Bonham, for school; about 44x44 ft.; 2 stories; metal roof; wood floors; cost \$9000; stove, \$290; bids opened about July 10. (Lately noted to have voted \$10,000 bonds.)

Tenn., Chillicothe.—Chillicothe Ind. Dist. School Trustees receive bids until June 30 for material and erecting brick addition to school building; plans and specifications at office L. W. Allred, Secy., Chillicothe.

Tenn., Cleburne.—Cleburne College will erect dormitory.

Tenn., Dallas.—Highland Park Ind. School Dist. has plans by Lang & Witchell, Dallas, for 5-room addition to school; brick; gravel roof; wood floors; steam heat (added capacity), \$1000; bids opened July 1; construction begins July 10. Address architects. (Lately noted to have voted \$10,000 bonds.)

Tenn., Eagle Ford.—School Board is having plans prepared by C. H. Leinbach, 1105 Southwestern Life Bldg., Dallas, for school; voted \$12,000 bonds. (Previously noted.)

Tenn., Emhouse.—School Board is having plans prepared by E. E. McAnelly, Southwestern Life Bldg., Dallas, for school; brick; cut stone trim; cost \$20,000. (Previously noted.)

Tenn., Fort Worth.—City votes July 22 on \$225,000 bonds for school improvements. Address School Board. (Lately noted.)

Tenn., Glen.—Trustees Dist. No. 14, T. H. Haynes, Pres., receive bids until June 26 to erect 1-story frame school building; 21x44 ft.; plans and specifications at office F. W. Lotz, Anahuac, Tex.

Tenn., Kountze.—Kountze Ind. School Dist. Trustees, J. O. Fountain, Secy., will erect brick school; Henry T. Phelps, Archt., San Antonio; bids opened June 24.

Tenn., Laredo.—M. S. Ryan, Pres. School Board, receives bids until July 3 to erect 3 schools, including plumbing and wiring; ordinary construction; cost \$80,000; plans at office C. H. Page & Bro., Archts., Austin, Tex.

Tenn., McAllen.—Trustees have plans by M. L. Waller, Fort Worth, for school; 80-120 ft.; fireproof; concrete slab and Barrett specification roof; concrete and tile floors; city electric lights; cost \$60,000; hot air blast heating system, \$5000; bids opened June 28; construction begins about July 10. Address C. O. Allen Maule, McAllen. (Lately noted.)

Tenn., McKinney.—School Board has plans by Sparger & Peters, Bonham, Tex., for school; 2 stories; 8 rooms; brick; 61x76 ft.; steel beams; edge grain pine flooring; metal ceiling; Barrett roof; cost \$11,500. (Previously noted.)

Tenn., Poetry.—School Board receives bids until July 3 to erect 1-story brick school; plans and specifications at office Zink & Laro, Terrell, Tex.; Dr. E. P. Yates, Terrell, Tex., is interested.

Tenn., Rockdale.—School Board plans to erect \$30,000 school.

Tenn., Ricardo.—School Board is having plans prepared by Jul Leffland, Victoria, Tex., for school; 1 story and basement; 6 rooms and auditorium, 57x70 ft.; tile, brick and concrete, cost \$9000.

Tenn., San Antonio.—School Board, Walton D. Hood, Pres., State Bank Bldg., receives bids until July 3 to erect high school; 3 stories; reinforced concrete faced with hard pressed brick; Texas stone trim; fireproof; "Y" shape; unit type; consisting of main building to accommodate 1500 pupils; 2 wings and auditorium, to seat 1500; metal fire escapes; stadium (under construction) to seat 15,000; retaining wall along river; provide bathing beach and bath house; Alfred Giles & Co., and Carl V. Seutter, Archts., San Antonio; separate bids for erection of

building, plumbing, heating, wiring, and vacuum cleaning system; cost about \$35,000. (Lately noted.)

Tenn., Switzer.—Switzer School Dist. Trustees plan to issue \$4000 bonds to erect school.

Tenn., Webb.—Trustees School Dist. No. 7 ordered vote July 15 on \$10,000 bonds to purchase site and erect school.

Tenn., Covington.—Board of Education, J. J. Miller, Secy., receives bids until July 5 to erect addition to school consisting of 8 class rooms and auditorium; with heating, lighting and plumbing; brick; metal roof; wood floors; steam heat; city lighting; 70x100 ft.; cost \$12,000; plans and specifications at office G. B. Gillespie, Pres., and R. H. Hunt & Co., Archts., Chattanooga, Tenn. (Lately noted.)

Tenn., Denton.—City Commission ordered election for July 29 on \$20,000 school bonds to supplement former issue of \$75,000. (Lately noted.)

Tenn., San Antonio.—School Board will erect \$3000 school building on Lavaca St.

Tenn., Waco.—Consolidated School Dist. No. 27-A votes July 15 on tax to erect \$3000 school building; J. J. Murphy and J. W. Rintz, presiding officers.

Va., Barboursville.—Barbour Dist. School Board, Geo. W. Barbour, Chrmn., Barboursville, will erect high school; bids opened June 24.

Va., Lexington.—Virginia Military Institute, Gen. Nichols, Supt., will expend \$30,000 to enlarge cadet barracks.

Va., Newport News.—Trustees are considering erecting school building to replace George Washington school.

Va., Rapidan.—Madison Dist. School Board will erect high school; Geo. S. McElroy, Chrmn., Rapidan; bids opened June 24.

Va., Richmond.—School Board acquired site for proposed Armstrong colored high school; fireproof; 30 rooms; cost \$25,000; Ferdinand C. Ebel, Chrmn., School Board.

Va., Waverly.—Trustees opened bids to erect school building; Willis & Co., Suffolk, Va., are lowest bidders at \$14,500; plans by Russell Edward Mitchell, Norfolk, Va.

Va., Waynesboro.—Fishburne Military School is having plans prepared by Collins Bros., Staunton, for barracks; 3 stories and basement; concrete; accommodations for 175 to 200 students.

W. Va., Huntington.—Board of Education engaged Verus T. Ritter, Huntington, as architect for all buildings and repairs (except as already provided by contract) included in \$300,000 bond issue lately noted voted; work includes remodeling 3 grade buildings and erecting 3 or 4 new structures.

W. Va., Jane Lew.—Wirt Swisher, Secy. Board of Education, receives bids until July 3 to erect addition to school; plans and specifications at Walter Nedy's hardware store.

W. Va., Parkersburg.—Tygart D'st. Board of Education will erect school; concrete and brick; contract for foundation let to Citizen's Engineering Co.

STORES

Ark., Blytheville.—Walton Bros. will erect concrete block business building; 140x100 ft.

Ark., Holly Grove.—Mayo & Mills have plans by Theo. M. Sanders, Little Rock, for mercantile building.

Ark., Little Rock.—M. B. Sanders has plans by Theo. M. Sanders, Little Rock, for building to be occupied by Lloyd Sporting Goods Co.; 2 stories; brick; cost \$15,000. (Lately noted.)

D. C., Washington.—Frank G. Carpenter has plans by Clarke Wagaman, 1211 Conn. Ave., N. W., Washington, to remodel 4-story brick store and office building; cost \$3000.

D. C., Washington.—Latner Estate has plans by Oscar Vogt, 405 Corcoran Bldg., Washington, for 3-story brick warehouse; cost, \$11,000.

Fla., Clearwater.—Bank of Clearwater rejected all bids to erect store, bank and office building. (See Bank and Office.)

Fla., Homestead.—C. B. Plummer will erect business building.

Fla., Homestead.—W. D. Horne will erect concrete business block.

Fla., Jacksonville.—N. J. Sutton will erect brick addition to building; cost \$5500.

Fla., Jacksonville.—Williams & Kinney will erect business building; 2 stories; hollow tile; cost \$4000.

Fla., Miami.—Ray Biscayne Co. will erect store, office and theatre building. (See Theatres.)

Fla., Miami.—Dr. W. S. Gramling is having plans prepared for store and apartment

building; 3 stories; lower floor stores; upper floors apartments; 90x40 ft.

Fla., Miami.—W. T. Carter will erect store and apartment building; 2 stories; 6 stores on lower floor; 8 apartments above; 100x100 ft.; concrete; cost \$30,000.

Fla., Palatka.—Atlantic & Gulf Insurance Co. will erect 2-story business block.

Fla., Palatka.—Leo Jacobson will erect brick business block to be leased by David Frutkinman; completion by Oct. 1.

Fla., St. Petersburg.—C. R. Hall will erect 2-story brick stores and residence.

Fla., Vero.—Paul Berndt will erect business block; Spanish style.

Fla., Winter Garden.—McMillan Hardware Co. will erect store building; 27x100 ft.; red pressed brick; plate glass front.

Ga., Athens.—Stewart-Paddock Jewelry Co. has plans by Warren C. Powell, Candier Bldg., Atlanta, to remodel store; 2 stories; terra cotta front; tile roof and floors; steam heat; electric lights; cost \$3000; bids opened July 3; construction begins July 15. Address Archt. (Lately noted.)

Ga., Columbus.—Rose Hill Lodge, I. O. O. F., will erect store and lodge building. (See Assn. & Frat.)

Ga., Milledgeville.—E. E. Bell will remodel store building.

La., Clarksville.—Louisiana Central Lumber Co. will remodel commissary. (See Hospitals.)

La., New Orleans.—Jahneke Realty Co. will erect building at 830 Howard St., to be occupied by Goodyear Tire & Rubber Co.; 3 stories; brick.

La., New Orleans.—Goodyear Tire & Rubber Co. will erect 3-story building on Howard St.

La., New Orleans.—Firestone Tire & Rubber Co. will erect building at 740 St. Charles Ave.

Md., Baltimore.—McGraw Tire Co., 10 W. Oliver St., has plans by Theodore Wells Pietsch, 1210 American Bldg., Baltimore, for store and apartment-house; cost \$25,000.

Mo., Kansas City.—Robt. McClintock has plans by Louis Curtiss, Kansas City, for 2-story and basement building.

Mo., Kennett.—W. G. Petty will erect business building; "L"-shaped.

N. C., Fayetteville.—Stein Bros. have plans by Benton & Benton, Wilson, N. C., for store and office building; 5 stories; brick and stone; 52x42 ft.; roof garden; cost \$25,000; bids opened June 29. (Lately noted.)

N. C., Whiteville.—J. D. Maulsby will erect business buildings.

Okla., Carter.—E. J. Davis will erect business building; concrete.

Okla., Drumright.—Abdoo & Swaldan will erect brick business building.

Okla., Francis.—A. F. & A. M., will erect business and lodge building.

Okla., Henryetta.—Smith & Swan will erect business building; 3 stories; brick.

Okla., Tulsa.—Edmond L. Fox, will erect store and hotel building. (See Hotels.)

Tenn., Chattanooga.—Jr. O. U. A. M. will erect lodge, apartment and store building. (See Association and Fraternal.)

Tenn., Columbia.—Barker Produce Co. will erect building.

Tex., Beaumont.—John N. Gilbert will erect block to contain 8 stores; 180x180 ft.; 1 story; provision for 2 or 3 stories later; concrete and brick; cost \$20,000; remodel Gilbert residence for apartment-house; also erect \$20,000 residence; construction begins July 15.

Tex., Bonham.—Dave Johnson has plans by Sparger & Peters, Bonham, and let contract to Arthur Fulghum to erect addition to brick business building.

Tex., El Paso.—Goodman Produce Co. will erect building; cost \$9750.

Tex., Glimmer.—C. A. Dyke has plans for store and office building. (See Contr. Awd. Dwell.)

Tex., Harper.—W. O. W. will erect business and lodge building. (See Association and Fraternal.)

Tex., Kingsville.—J. B. Ragland Mercantile Co. will remodel 2-story brick business building; install store front; cost \$4500; day labor; Jul. Leffland & Son, Archts., Victoria, Tex.

Tex., Marlin.—A. Edgar Smith will erect business building to be occupied in part by Marlin Commercial Club.

Tex., Paris.—A. P. Park is having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for business building; 2 stories; brick; electric wiring.

Tex., Paris.—Bywaters Estate will erect brick business building; Lang & Wittichell and Curtis, Broad & Lightfoot, Archts., Paris.

Tex., Paris.—Broad Bros. are having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for 2-story brick business building.

Tex., Paris.—F. S. Litch is having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for 2-story brick business building; electric fixtures.

Tex., Paris.—C. H. Noyes is having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for brick business building.

Tex., Paris.—Dr. Turner F. Roberts will erect 2- or 3-story business building.

Tex., Paris.—Gordon & Parr have plans by M. C. Parker, Beaumont, for business building; 37x77 ft.; brick; 5-ply built-up roofing; wood floors; metal ceiling; skylight; cost \$6000; contractor to purchase materials.

Tex., Paris.—J. S. Williams is having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for 2-story brick business building.

Tex., Paris.—Morgan Crook will erect business building.

Tex., Paris.—S. B. M. Long is having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for business building; 2 stories; brick; electric wiring.

Tex., Paris.—T. C. Lightfoot is having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for business building; 2 stories; electric wiring.

Tex., Paris.—W. B. Wise is having plans prepared by Lang & Wittichell and Curtis, Broad & Lightfoot, Paris, for business and theatre building; 2 stories; fireproof. (Previously noted.)

Tex., Port Arthur.—F. W. Woolworth Co., New York, is reported to erect business building; electric fixtures; cost \$25,000.

Tex., Rockdale.—E. M. Scarbrough has plans by Edwin C. Kreisle, 830 Scarbrough Bldg., Austin, to remodel business building; install front; materials include face brick, marble, structural steel, edge grain pine flooring, metal ceiling; brick cornice; ceramic tile flooring in lobby, etc.

Tex., San Antonio.—Paul Mueller will erect 3-story building; cost \$20,000.

Tex., El Paso.—Robert and Julius Kraemer has plans by Trost & Trost, El Paso, for store and apartment building on N. Oregon St.; 30x100 ft.; ordinary construction; Barrett roof; cost \$10,000; steam heat, \$3000; contract let June 28. (Lately noted.)

Tex., El Paso.—Beaudette & Cropper will erect store building; cost \$15,000.

Tex., Austin.—Kuehne, Chasey & Giesecke, Austin, are preparing plans for store building on Guadalupe St.; 43x30 ft.; 2 stories and mezzanine; ordinary construction; gravel roof; hot-water heat; 3-way prism vault lights; Otis, Warner or American elevator; cost \$12,000; bids opened Sept. 1. (Lately noted.)

Tex., Austin.—Mary J. Butler will erect 1-story brick store building; cost \$5000.

Va., Richmond.—A. R. Holderby will erect brick stores; cost \$4000.

Va., Suffolk.—B. Herman has plans by B. F. Mitchell, Norfolk, to remodel store building; will provide white terra cotta and marble front, change interior, etc.

THEATERS

Fla., Fort Myers.—H. E. Heitman has plans by Francis J. Kennard, American National Bank Bldg., Tampa, Fla., for theater; arcade; brick construction; cost \$20,000.

Fla., Miami.—Bay Biscayne Co., W. B. Ogden, Pres., Box 584, Miami, has plans by Geo. L. Pfeiffer, Lemon City, Fla., for fireproof theatre, store and office building; 3 stories; 95x100 ft.; fireproof roof; cement and wood floors; cost \$20,000; construction by owner who may be addressed. (W. B. Ogden lately noted to erect this building.)

Md., Baltimore.—McHenry Theater Co. Incptd. with \$100,000 capital; Henry W. Webb, Pres., 1318 Fidelity Bldg.; Eugene Bolster, Secy.-Treas.; will erect theater at Cross and Light Sts.; fireproof; concrete, brick and steel; seating capacity, 1200; runways to balcony; cost \$60,000; Oliver B. Wight, Archt., Munsey Bldg., Baltimore; construction begins Oct. 1.

Okla., Francis.—Broadway Theatre will erect building. Address The Manager.

Tex., Paris.—W. B. Wise is having plans prepared for business and theatre building. (See Stores.)

WAREHOUSES

Ala., Attalla.—North Alabama Warehouse & Compress Co. is having plans prepared for additional warehouse; 75x110 ft.

Ark., Nashville.—Farmers Union Warehouse Co. will erect warehouse; brick; 100x142 ft.

Fla., Miami.—Homestead Mercantile Co. will erect 2-story concrete warehouse.

Ga., Athens.—Dr. J. C. Bloomfield will erect \$12,000 warehouse.

Ga., Eatonton.—J. O. Wall will erect cotton warehouse.

Ga., Rome.—Rome Oil & Fertilizer Co. will erect seed house; brick; cost \$10,000.

Ga., West Point.—Huguley, McCulloh & Co. are erecting warehouse; 100x127 ft.

BUILDING CONTRACTS AWARDED

APARTMENT-HOUSES

Fla., Eustis.—L. J. Taylor let contract to erect store, flat and office building. (See Bank and Office.)

Ga., Atlanta.—Kendrick & Houser let contract to J. L. Denman, 509 Silvey Bldg., Atlanta, to erect 2-story brick-vener apartment-house; 4 suites; 24 rooms; tar and gravel roof; pine, oak and cement floors; cost \$9000; 1-pipe steam heating plant, \$1000; Fritz Wagner, Archt., Atlanta. Address Owner.

Ga., Augusta.—W. M. Dunbar let contract to Lawrence Construction Co., 887 Broad St., Augusta, to erect apartment-house; 60x50 ft.; stucco and wood; Carey and tin roof; wood floors; electric lights; cost \$8000; hot air heat, \$700; Julius Wenig, Archt., Augusta. (Lately noted.)

Ga., Savannah.—O. F. Fulmer let contract to C. W. Wall, Savannah, to erect apartment-house.

Ga., Savannah.—T. L. Richardson let contract to erect store and apartment-house. (See Stores.)

Ky., Lexington.—W. S. Willett let contract to R. S. Webb & Co., Lexington, to erect addition to building for apartments; brick walls; ordinary construction; tin roof; wood joist floor construction; cost \$9000; Manley & Young, Archts., Lexington. (Lately noted.)

Tenn., Memphis.—R. E. Hunter let contract to J. E. Cole, Memphis, to erect apartment-house; brick and stone; 4 apartments of 6 rooms; cost \$12,000.

Tenn., Memphis.—Mrs. N. H. Hunter let contract to J. E. Cole, Memphis, to erect apartment-house; 2 stories; brick; 20 rooms; cost \$10,000.

Tenn., Nashville.—George Stubblefield let contract to W. P. Regen, Nashville, to erect apartment-house; 2 suites.

Tex., Austin.—Ed. Cravens let contract to Dieter & Co., Austin, to erect apartment-house; plans by Kuehne, Chasey & Giesecke, Austin, call for brick veneer; 8 rooms; steel lintels; pine floors; tile bath room floors; brick porch columns; gas and electrical fixtures; dumb waiter; cost \$6500. (Previously noted.)

Tex., Austin.—J. A. Fernandez let contract to Will Biggs, Austin, to erect apartment building; brick veneer; 14 rooms; steel lintels; composition roof; pine floors; brick porch columns; gas and electric fixtures; 4 bath rooms; 2 dumb waiters; cost \$9500; Kuehne, Chasey & Giesecke, Archts., Austin; contractor will purchase materials. (Previously noted.)

Tex., El Paso.—Mrs. T. T. Beall let contract to Beaudette & Cropper, El Paso, to erect store and apartment building at 419 Myrtle Ave.; 40x150 ft.; 2 stories; 4-ply asphalt and felt roof; wood floors; 3-way prism vault lights; cost \$15,000, exclusive of plumbing, heating and electrical work; let contract to Elliott Engineering Co., El Paso, for heating, and General Electric Co., New York, for lighting plant; Brautson & Leibert, Archts., El Paso. (Lately noted.)

Tex., Paris.—Belford Apartment Co. let contract to W. R. Hatcher Construction Co., Paris, to erect apartment house; electric wiring; Lang & Wittichell and Curtis, Broad & Lightfoot, Archts., Paris.

Va., Danville.—N. Kluff let contract to W. K. Anderson, Danville, to erect 4 tenement houses on Wilson St.; brick; composition roofs; wood floors; grates; electric lights; cost \$8500; Geard & Cardwell, Archts., Danville. (Lately noted under Dwelling.)

ASSOCIATION AND FRATERNAL

Mo., Joplin.—I. O. O. F. let contract to Love & Martin, Joplin, to erect business and

brick; automatic sprinkler system; will erect similar warehouse later.

Ky., Louisville.—Liggett & Myers Tobacco Co. will erect brick warehouse; cost \$3500.

Ga., Augusta.—T. C. Wilson will erect \$9000 brick warehouse.

N. C., Winston-Salem.—Cromer Bros. will erect warehouse; 80x50 ft.; 2 stories and basement; brick; mill construction; plans by Humphreys & Faw, Winston-Salem, ready early part July.

S. C., Anderson.—W. L. Brissey Lumber Co., W. L. Brissey, Pres., will erect warehouse.

Tex., Austin.—University Co-operative Society will erect 1-story basement and business building. (See Stores.)

Tex., Ennis.—Baldridge Feed & Fuel Co. will erect warehouse; brick; 75x115 ft.

lodge hall; 120x50 ft.; brick and stone; tar and gravel roof; ordinary construction; no heating or lighting plant; cost \$17,000; C. H. Sudhoelter Co., Archt., 215 W. 9th St., Joplin. Address Contrs. (Lately noted.)

Okla., Pawnee.—A. F. & A. M. let contract to erect lodge building; T. D. McIntire, O. O. Menster and Frank Hudson, Bldg. Com.

BANK AND OFFICE

Ark., Little Rock.—England National Bank, J. E. England, Pres., will improve building; let contract to Southern Seating & Cabinet Co., Jackson, Tenn., for marble, mahogany and bronze fixtures; plans by C. L. Thompson, Little Rock, call for painting, papering and decorating interior; constructing mezzanine floor, etc.; cost \$10,000.

Ark., Altheimer.—Bank of Altheimer let contract to Mavrick & Mavrick, Pine Bluff, Ark., to erect bank building; 30x60 ft.; stone and brick; composition roof; tile floors; cost \$9000; Mr. Cresig, Archt., Pine Bluff. (Lately noted.)

Fla., Eustis.—L. J. Taylor let contract to Hammer Bros., Orlando, Fla., to erect store, flat and office building; 2 stories; 32x50 ft.; buff brick; tile floor in store room; 2 apartments; cost \$10,000; Allen & Humphrey, Archts., Mt. Dora, Fla.

Fla., Inverness.—Inverness County Bank let contract to C. M. Emerson, Brooksville, to rebuild burned structure.

Md., Baltimore.—United States Fidelity & Guaranty Co., Calvert & German Sts., has plans by Theo. Wells Pietsch, American Bldg., Baltimore, for improvements to include bronze entrance, etc.; contractors estimating are; John Hiltz & Son, 7 Clay St.; Morrow Bros., Fidelity Bldg.; Fred Decker & Son, 1213 E. Biddle St.; B. F. Bennett Bldg. Co., 106 W. Madison St., all of Baltimore.

Tex., Colorado.—City National Bank let contract to J. M. Morgan, Big Spring, Tex., to erect bank and office building; 2 stories; 30x100 ft.; brick and frame; stone trim; steam heat; electric lights; David S. Castle, Archt., Abilene, Tex. (Lately noted.)

Tex., Dallas.—American Express Co. and Wells, Fargo & Co. Express let contract to erect express building to contain offices, etc. (See Railway Stations, Sheds, etc.)

Tex., Paris.—First National Bank let contract to Finn, Owings & Co., Paris, to erect bank building; face brick, marble, tile and terra cotta; electric fixtures; Lang & Wittichell and Curtis, Broad & Lightfoot, Archts., Paris.

Va., Bedford City.—People's Bank let contract to C. W. Wade & Co., Roanoke, Va., to erect bank, store and office building; 60x80 ft.; brick; wood and tile roof; cost \$25,000; heating \$2500; lighting \$500; H. M. Miller, Archt., Roanoke. Address Contr. (Lately noted.)

W. Va., Wheeling.—Security Trust Company let contract to J. R. Butts & Sons Co., Wheeling, to erect building for bank and stores; 52x132 ft.; 4 stories; brick, terra-cotta and granite; tile and wood floors; also let contract to Seofield & Cowl, Wheeling, for heating; Fred F. Farles, Archt., Wheeling; construction begun.

CHURCHES

Ga., Augusta.—St. James Church let contract to T. O. Brown & Son, Augusta, to erect parsonage; brick and stone; slate roof; steam heat; hardwood floors; cost

\$7500; G. Lloyd Preacher, Archt., Johnson Bldg., Augusta. (Lately noted.)

Ga., Fayetteville.—Baptist Church, Rev. L. P. Glass, Chmn., Committee, is having plans prepared by J. E. Greene, 508 American Trust Bldg., Birmingham, for church; 65x65 ft.; ordinary construction; tin shingle roof; pine floors; warm-air heat; cost \$8000.

Ga., Thomasville.—Methodist Church let contract to T. E. Amason, Thomasville, to erect Sunday-school annex; 2 wings; brick; 2 stories; will provide 16 additional classrooms and additional seating capacity in main auditorium of 250; C. Frank Gailher, Archt., Montgomery, Ala. (Lately noted.)

Md., Baltimore.—Frank A. Furst has plans by F. E. Tormey, 72 Gunther Bldg., Baltimore, and let contract to Monmonier & Sorrell, 1711 McCulloh St., Baltimore, to erect chapel in Holy Redeemer Cemetery; 1 story; 32 ft. in diam.; stone; copped dome; cost \$50,000. (Lately noted.)

Md., Govans.—Boundary Avenue Methodist Episcopal Church let contract to Cowan Bldg. Co., 106 W. Madison St., Baltimore, to erect Sunday-school; brick; 46.5x50 ft.; cost stone; slate roof; frame floor construction; steam heat; electric lights; cost \$25,000; J. E. Lafferty, Archt., 11 E. Pleasant St., Baltimore. (Lately noted.)

N. C., Charlotte.—Methodist Protestant Church has plans by Louis H. Asbury, Charlotte, and let contract to J. D. Stroupe, Charlotte, to erect \$8000 building.

N. C., Wilmington.—Grace Methodist Church let contract to Rhodes & Underwood, Wilmington, to erect Sunday-school annex; 2 stories; 15 classrooms; brick; slate and tin roof; wood floors; cost \$20,000; steam heat, \$1700; electric lights; construction to erect Sunday-school; brick; 46.5x50 ft.; gins July 1. B. H. Stephens, Archt., Wilmington. (Lately noted.)

Tex., Beaumont.—Colored Baptist Church let contract to W. L. James, Port Arthur, Tex., to erect building; plans by M. C. Parker, Beaumont, call for frame and brick; 50x100 ft.; cost \$20,000.

Tex., Olney.—Baptist Church will erect building; let contract for brick work to N. L. Graham, Seymour, Tex.

Tex., San Antonio.—Madison Square Presbyterian Church, Rev. J. M. Toad, pastor, let contract to Watson & Kroeger, San Antonio, to erect addition to building; 64x52 ft.; 2 stories and basement; 30 classrooms, separated by rolling partitions; reinforced concrete construction; furniture and fixtures to cost \$5000; Reuter & Harrington, Archts., San Antonio; J. C. Kinney, Chairman Building Commission.

Va., Kerrs Creek.—New Monmouth Church, let contract to L. S. Ruble, Lexington, Va., to erect Sunday-school; 52x38 ft.; brick eased; hipped roof; wood floors; cost \$3300; S. W. Moore, Archt., Lexington. (Lately noted.)

CITY AND COUNTY.

Ga., Valdosta.—Jail.—City, T. B. Converse, Jr., Mayor, has plans by and let contract to W. H. Gaine to erect prison; 1 story; 70x40 ft.; brick; metal roof; concrete floor; gas-steam heat; cost \$4000. (Lately noted.)

La., Oak Grove.—Jail.—City let contract to Southern Structural Steel Co., San Antonio, Tex., to erect \$7000 jail; construction under supervision of Lee J. Rollins, San Antonio.

Tenn., Memphis.—Fair.—Shelby County let contract to Alexander Construction Co., Memphis, to erect exhibit building at Tri-State Fair Grounds; frame; trussed steel roof; concrete floor; 100x200 ft.; cost \$15,000. (Previously noted.)

Tex., Houston.—Shelter House.—City let contract to W. L. Pearson & Co., Houston, to erect shelter house in Hermann Park; 45x85 ft.; timber trusses on brick piers; asphalt shingle roof; cement floors topped with concrete; cost \$4000; Maurice J. Sullivan, Archt., Houston. (Lately noted.)

COURTHOUSES

La., Many.—Sabine Parish Police Jury let contract to Cladwell Bros., Abbeville, La., to erect courthouse; 116x50 ft.; fireproof; tile and composition roof; fireproof floors; cost \$78,000; heating, \$5000; lighting, \$2000; W. L. Stevens, Archt., New Orleans; construction begins July 1. (Lately noted.)

N. C., Mocksville.—Davie County let contract to J. L. Crouse, Greensboro, N. C., to erect courthouse; 2 stories; fireproof; H. W. Johns-Manville 4-ply built-up roof; composition floor on concrete slab; cost \$24,504; also let contract at \$1272 to L. B. Brickenstein, Winston-Salem, N. C., for 1-pipe low pressure gravity return steam heating system; at \$1250 to J. L. Griffin, Greensboro, for

electric lighting system; Atlantic Terra Cotta Co., New York, architectural terra cotta; at \$496 to F. B. Ingold, Hickory, N. C., for plumbing; Raleigh James Hughes, Archt., Greensboro. (Lately noted.)

DWELLINGS

D. C., Washington.—Elizabeth Harbers has plans by Charles Nell, Washington, and let contract to J. B. Higdon, 2606 Bladensburg Rd., N. E., Washington, to erect 2-story frame residence; cost \$3900.

D. C., Washington.—H. Wilson has plans by C. C. Dunkle, 141 Kentucky Ave., S. E., Washington, and let contract to A. Jeffery, 1696 Lawrence St., N. E., Washington, to erect 2-story brick residence; cost \$3000.

D. C., Washington.—Nellie Wall has plans by C. C. Jones, 235 Oakdale Pl., N. W., Washington, to erect 2-story brick residence; cost \$7000.

D. C., Washington.—J. A. Foley has plans by C. C. Jones, 235 Oakdale Pl., N. W., Washington, and let contract to Winfield Preston, 1718 8th St., N. W., Washington, to erect 2-story brick residence; cost \$4200.

D. C., Washington.—L. P. McLachlin let contract to J. L. Marshall, 700 10th St., N. W., Washington, to erect 2-story frame residence; cost \$6000; Kendall & Smith, Archts., 719 Southern Bldg., Washington.

Fla., Tampa.—Dr. C. L. Nance let contract to H. B. Stetler, Tampa, to erect residence; 2 stories; brick veneer and shingle; slate roof; tile baths; oak floors; brick mantels; cost \$9000; F. M. Curtis, Archt., First National Bank Bldg., Tampa.

Ga., Augusta.—Mrs. R. D. Crocker let contract to Palmer-Spivey Construction Co., Augusta, to erect residence; 2 stories; frame; tin roof; furnace heat; hardwood floors; tile mantels; electric lights; cost \$7000; C. L. Whaley, Archt., 414 Harrison Bldg., Augusta.

Ga., Augusta.—H. H. Jones let contract to Palmer-Spivey Construction Co., Augusta, to erect residence; brick; tile roof; hardwood floors; birch-veneered doors; electric lights; heating not decided; cost \$10,000; Philander P. Scroggs, Archt., 524 1/2 Broad St., Augusta. (Lately noted.)

Ga., Augusta.—Mrs. Louis Cohen will erect 2-story residence; cost \$4000; E. W. Hancock, Contr., Augusta.

Ga., Augusta.—Louis Gercke let contract to H. C. Van Orner, 1128 Telfair St., Augusta, to erect residence; 32x44 ft.; frame; composition roof; wood floors; city electric lights; cost \$5000; coil heating system \$200; T. M. Campbell, Archt., Augusta.

Ga., Augusta.—C. K. Lawrence, Jr., let contract to Lawrence Construction Co., 867 Broad St., Augusta, to erect bungalow; 40x60 ft.; asphalt shingle roof; wood floors; hot water heat; electric lights; cost \$3800. (Lately noted.)

Ga., Augusta.—Mrs. V. A. Hemstreet let contract to Lawrence Construction Co., 867 Broad St., Augusta, to erect residence; stucco and wood; 34x30 ft.; asphalt shingle roof; wood floors; electric lights; cost \$5000; construction begins July 1.

Ga., Augusta.—Mr. Clausen let contract to McKenzie & Thompson, Augusta, to erect residence; cost \$7500; G. Lloyd Preacher, Archt., Augusta.

Ga., Augusta.—R. A. Heath let contract to McKenzie & Thompson, Augusta, to erect residence; cost \$4700.

Ga., Rome.—Oscar McWilliams let contract to C. C. McKenzie, Rome, to erect residence; hollow tile walls; brick veneer; wood joist floor construction; shingle tile roof; cost \$15,385; hot-water heat, \$800; electric wiring, about \$500; A. Ten Eyck Brown, Archt., Forsyth Bldg., Atlanta. (Previously noted.)

Ga., Savannah.—C. E. Dunlap let contract to Excelsior Construction Co., Savannah, to erect residence.

Md., Baltimore.—Walter A. Frey, 400 E. Pratt St., let contract to Henry Smith, to erect dwelling and garage; 2 1/2 stories; brick; 48x38 ft.; cost \$13,000.

Md., Hamilton.—E. E. Smickle, 2775 Tivoli Ave., Baltimore, let contract to John A. Baker, Reisterstown, Md., to erect residence at 5 Morelle Rd., Altsa terraces; 34x36.5 ft.; frame; slate roof; edge-grain pine floors; steam heat; gas and electric lights; T. H. Webb, Archt., 729 Title Bldg., Baltimore.

Md., Baltimore.—Electric Park Development Co. let contract to Thomas B. Stanfield Co., 212 Clay St., Baltimore, to erect 12 2-story dwellings; brick; 21x45 ft.; cost \$24,000; will erect total of 300 dwellings.

Md., Baltimore.—Frank J. Schaeffer, 975 Frederick Ave., will erect two 2-story brick

dwellings at 3507-09 Old Frederick Rd.; 15x45 ft.; cost \$3200 each, F. Markel, Archt.; W. E. Goff, Contr.

Md., Mt. Washington.—Clarence H. Bradford of Consolidation Coal Co., 1109 Continental Bldg., Baltimore, let contract to L. Schoenlein & Son, 2217 E. Baltimore St., Baltimore, to erect cottage at Hill Top Park; hollow tile and stucco; cost \$10,000.

Mo., Kansas City.—A. E. Hudson, 3116 Holmes St., will erect four residences on Smart St.; 6 rooms, bath, den and sun porch; stone and frame; shingle roof; oak and maple floors; gas and electric lights; cost \$2500 each; hot air heat \$125; contract let. (Lately noted.)

Mo., St. Louis.—Clara Investment Co. let contract to H. N. Hughes, St. Louis, to erect 2-story tenement; also 2-story store and tenement; brick; cost \$11,000.

Mo., St. Louis.—Anna Schaefer let contract to W. Schaefer, St. Louis, to erect two 1-story residences; brick; cost \$5800.

Mo., St. Louis.—Verwin Real Estate Co. let contract to J. H. Williamson, St. Louis, to erect 2-story dwelling; brick; cost \$4500.

N. C., Charlotte.—W. L. Alexander let contract to John Blythe, Charlotte, to erect residence; 2 stories; brick; steam heat; tile roof; hardwood floors; cost \$35,000; Chas. C. Cook, Archt., Charlotte. (Lately noted.)

N. C., Greensboro.—Guilford Insurance & Realty Co. let contract to J. R. Truitt, 1236 Randolph Ave., Greensboro, to erect dwellings on Olive & Hendrix Sts.; 6 and 7 rooms; frame; shingles; rift pine flooring; electric lights; cost \$2800 to \$3000 each; steam and hot air heat, \$325 to \$375. Address contractor. (Lately noted.)

N. C., Winston-Salem.—J. W. Wix let contract to J. H. Grubbs, Winston-Salem, to erect residence; 8 rooms; frame; cost \$4800.

Okla., Oklahoma City.—Prentiss Price let contract to erect residence; plumbing; electrical fixtures and heating plant; cost \$12,000.

Okla., Tulsa.—S. DeZell Hawley has plans by Starr & Thompson, Tulsa, for residence and let number of subcontracts; 40x38 ft.; brick and tile; cedar shingle roof; quarter sawed oak floors throughout; Hunneywell hot water heating system; cost \$5000. (Lately noted.)

S. C., Anderson.—Gluck Mills let contract to Builders Lumber & Supply Co., Anderson, to erect 6 cottages.

S. C., Anderson.—Builders' Lumber & Supply Co., Anderson, has contract to erect residences for Professors Crum and Fitzpatrick of Clemson College; bungalow type; 6 rooms.

S. C., Greenwood.—Greenwood Cotton Mills let contract to Builders' Lumber & Supply Co., Anderson, S. C., for material and erection of 25 to 40 bungalows; 4 and 5 rooms; cost \$24,000.

S. C., Spartanburg.—H. L. White let contract to P. S. Cecil, Spartanburg, to erect dwelling; 31x56 ft.; 9 rooms; frame; composition roof; pine and hardwood floors; hot-air heat; electric lighting; cost \$4500. Address contractor.

Tenn., Memphis.—Charles Tucker let contract to A. F. Klee, Memphis, to erect brick and stucco bungalow; hardwood finish; enamel coated interior trim; 2 bathrooms; hot water heat; 9 rooms; cost \$4600.

Tenn., Memphis.—Mrs. Frank Carlin let contract to A. F. Klee, Memphis, to erect bungalow; brick and stucco; cost \$3250.

Tenn., Memphis.—Paul Townier let contract to J. M. Harris, Memphis, to erect residence on Peabody Ave.; 16 rooms; brick veneer; hardwood floors; cost \$12,000.

Tenn., Nashville.—W. P. Doyle, Agt. for Mrs. Lenora E. Archibald, let following subcontracts for erection of 2 residences; 6 rooms; brick veneer; composition single roof; oak floors; warm air heat; electric lights; cost \$4000 each: A. Tolmie & Co., foundation; Fulcher Brick Co., brick work; L. A. Davidson & Co., carpenter work; Uncle Hiram Roofing Co., concrete work; H. E. Palmer, roofing; Phillips & Butteroff Mfg. Co., furnaces; A. Singer, tile work; Chas. A. Howell, painting; Cooper & Ferguson, plastering; H. H. Pride, oak flooring; L. S. Ritter, electric work; Vaughn & Scheil, plumbing; Keith Simmons Co., hardware, all of Nashville; C. K. Colley, Archt., 33-40 Life & Casualty Bldg., Nashville. (Lately noted.)

Tenn., Nashville.—Winstead-Shelton Co. will erect two 2-story brick-veneer residences; 8 rooms; brick veneer and kellerstone; composition shingle roofing; hardwood over sub-floor; concrete basement floor; hot-air heat; electric lights; let contract to C. B. Faulk, 526 Union St., Nashville. Cost \$5000 each.

Tenn., Nashville.—Foster Hume, care Cumberland Telephone & Telegraph Co., let contract to W. M. Davis, 1113 Eighth Ave. South, Nashville, to erect residence; 37x55 ft.; brick veneer and frame construction; slate roof; hardwood floors; steam heat; cost \$9000; Thos. W. Gardner, Archt., Nashville. (Lately noted.)

Tex., Austin.—J. A. Fernandez has plans by Kuehne, Chase & Gleescke, Austin, and let contract to remodel residence; gas and electric fixtures; 2 bathrooms; dumb waiter; wood floors, etc.; cost \$3200.

Tex., Fort Worth.—B. G. Rhodes and John C. Ryan, Jr., let contract to Rhodes-Dines Building Co., Fort Worth, to erect 1-story 7-room brick-veneer residence at 2506 6th Ave.; cost \$4750; also erect 1-story 7-room tile residence 2506 5th Ave.; cost \$4800.

Tex., Fort Worth.—Wm. Cameron let contract to Oze & Thompson, Fort Worth, to erect 1-story 7-room frame residence; cost \$3000.

Tex., Glimer.—C. A. Dyke let contract to Wm. Amos to erect 10-room residence; hardwood floors; cost \$4000; also has plans for office and store building; tile and stucco; 33x55 ft.; 2 stories; metal shingle or tile and composition roof; cement floors.

Tex., Houston.—D. Edward Greer has plans by and let contract to Russell-Brown Co., 1214 Carter Bldg., Houston, to erect dwelling; 45x55 ft.; hollow tile; tile roof; oak floors; warm-air heat; electric lighting; cost \$15,000. Address Contr. (Lately noted.)

Tex., Paris.—E. L. Bohoney let contract to Ewing & Marchant, Paris, to erect residence; frame; electric fixtures; Lang & Wittchell, and Curtis, Broad & Lightfoot, Archts., Paris.

Tex., Paris.—T. B. Revell let contract to erect residence.

Tex., Paris.—W. H. P. Anderson let contract to J. H. Smith, Paris, to erect residence; frame; electric fixtures; Lang & Wittchell, and Curtis, Broad & Lightfoot, Archts., Paris.

Tex., Victoria.—H. A. Lawrence let contract to Fred Urban, Victoria, to erect residence (exclusive of electric wiring and plumbing); plans by Jules Leffland & Son, Victoria, call for semi-bungalow style; 6 rooms; cost \$3000.

Tex., Waco.—Dr. J. F. Bailey let contract to Harris & Hewitt, Waco, to erect cottage; reinforced hollow wall concrete and steel; plans by owner.

Va., Danville.—Julian Meade let contract to L. B. Flora, Danville, to erect residence; 2 stories; brick; dark red tapestry brick with raked joints; dull green Spanish tile roof; red tile porches 6x6 ft.; tiled baths; vapor heat; Heard & Cardwell, Archts., Danville.

Va., Danville.—Patton, Temple & Williamson let contract to L. B. Flora, Danville, to erect frame dwelling; cost \$4000.

Va., Danville.—J. R. Muse let contract to L. B. Flora, Danville, to erect dwelling; brick; cost \$10,000.

Va., Norfolk.—Archibald Ogg let contract to S. B. Hutchins, Norfolk, to erect 2 residences; 2 stories; frame; slate roof.

W. Va., Alderson.—J. S. Thurmond let contract to D. B. Moore, Charleston, W. Va., to erect residence; brick veneer; green slate roof; wood floors; cost \$15.00 to \$20.00; let contract for face brick to C. S. Brown, Huntington, W. Va.; H. Rus Warner, Archt., Charleston. Address contractor. (Lately noted under W. Va., Huntington.)

W. Va., Parkersburg.—Hermann O. Smith let contract to L. C. Polling, Parkersburg, to erect brick residence; cost \$8000.

W. Va., Wheeling.—Ambrose Hagib let contract to Andy Prudhome, Wheeling, to erect residence.

W. Va., Wheeling.—Marsden L. Colvig let contract to Bushon & Lehman, Wheeling, to erect 2-story residence.

GOVERNMENT AND STATE

Tenn., Maryville.—Postoffice.—Treas. Dept., Jas. A. Wetmore, Act., Supervising Archt., Washington, D. C., let contract at \$34,374 to Algernon Blair, Montgomery, Ala., to erect postoffice; limestone construction. (Lately noted.)

Tex., Galveston.—Keepers' Dwellings.—Lighthouse Inspector let contract to O. E. Fischer Building Co., Galveston, to erect light keepers' dwellings at Bolivar Peninsula; frame; iron pile foundation; asbestos slate roof; wood floors; cost \$20,500. (Lately noted.)

HOSPITALS, SANITARIUMS, ETC.

Tex., Brady.—Mrs. Guyton and Stone let contract to Mr. Gray, Brady, to erect sanitarium; 3 stories; 30 rooms; brick.

HOTELS

Ga., Cordele.—Suwanee Hotel let contract to H. F. Corbett, Cordele, to remodel building. Install plumbing, etc.

Mo., St. Louis.—Avenue Realty Co., let contract to Fruin-Colnon, Contracting Co., St. Louis, to erect hotel at 814 Washington St.; cost about \$50,000.

Okla., Drumright.—Harrold Rea, Drumright, is reported having contract to erect 5-story hotel; cost about \$120,000; W. L. McAtee, Archt., Drumright.

MISCELLANEOUS

Ark., Little Rock.—Barn.—Ike Kemper let contract to W. H. Lamberson, Little Rock, to erect brick barn to be occupied by Arkansas Cold Storage & Ice Co.; Theo. M. Sanders, Archt., Little Rock.

Ga., Rome.—Fair.—North Georgia Fair Assn. let contract to C. C. McKenzie, 209 W. 11th St., Rome, to erect exhibit hall 50x100 ft. club building 40x60 ft., barns, stables, grandstand and several other structures; frame; composition roof; wood floors; cost \$800; S. A. Marshall, Archt., Rome; construction begins July 1. (Lately noted.)

Tenn., Nashville.—Home.—Tennessee Baptist Orphans' Home let contract to W. M. Davis, 1113 Eighth Ave., South, Nashville, to erect superintendent's home and nursery; brick exterior walls; metal partitions; galvanized cornice; asphalt shingle roof; cost \$11,000; Thos. J. Davis, Archt., Nashville. (See Machinery Wanted—Plumbing Fixtures.)

Tenn., Nashville.—Stable.—J. W. Napier let contract to John Moore, to erect stable; 60x111 ft.; mill construction; asbestos roof; cement floors; cost \$7200.

RAILWAY STATIONS, SHEDS, ETC.

Tex., Dallas.—American Express Co., 65 Broadway; Wells, Fargo & Co. Express, 71 Broadway, both of New York, let contract to S. S. Self, Dallas, to erect express building; 56x320 ft.; basement, 36 ft. wide, of reinforced concrete; first story of white enamel brick with white enamel terra-cotta cornice; 2-story section at both ends for offices; freight sheds in rear of building will have 41 Klinebar doors; cost \$100,000; plans by James H. Humphreys, Consult. Engr. for Wells, Fargo & Co., San Antonio. (Noted in Jan.)

SCHOOLS

Ark., Bigelow.—School Board let contract to Mr. Davidson, Bigelow, to erect \$25,000 school building; completion by Sept. 1. (Previously noted.)

Ark., Mammoth Spring.—School Board let contract to Wm. Watson, Mammoth Spring, to remodel and erect addition to school building.

Fla., Jacksonville.—Board of Public Instruction, let contract to O. P. Woodcock, Jacksonville, to erect school at Fishweir Creek; 4 rooms; brick; Rutledge Holmes, Archt., Jacksonville. (Lately noted.)

Fla., Jacksonville.—Board of Public Instruction Duval County let contract to R. V. Labarre, Jacksonville, to erect West Riverside school, at Herschell and James Sts.; 118x226 ft.; fireproof; composition slate roof; fireproof flooring; cost \$48,000; gravity steam heat, \$3000; H. J. Klutho, Archt., Jacksonville. (Lately noted.)

Fla., Jacksonville.—Board of Public Instruction Duval County, let contract to W. P. Richardson & Co., Jacksonville, to erect South Jacksonville school; frontage 20 ft. with 3 wings 90 ft.; brick bearing walls; reinforced concrete floor slabs; tile roof; rift pine floors over concrete; steam heat; 16 classrooms, 2 manual training and domestic science rooms, auditorium to seat 600, etc.; cost \$64,000; Mark & Sheftall, Archts., Jacksonville. (Lately noted.)

Fla., Lake Worth.—School Board let contract to K. L. Hifner, Lake Worth, to finish second floor of school; 85x125 ft.; cost \$4000; G. L. Childs, Archt., Lake Worth. (Lately noted.)

Mo., Rich Hill.—Board of Education, Carl Stonebraker, Secy., has plans by C. M. Williams, 726-7 Finance Bldg., Kansas City, and let contract at \$23,230 to Clark Construction Co., Kansas City, Mo., to erect school building; 2 stories and basement; 16 rooms; pressed brick; Carthage limestone trim; steam heat; tile and cement floors; fire escapes; auditorium; physical-culture laboratory; lecture-room; C. M. Ewing, Nevada, Mo., received contract at \$3075 for plumbing and heating; completion Nov. 20. (Lately noted.)

Okla., Bessie.—Bessie School Board and City Council let contract to H. A. Kenner,

Cordele, Okla., to erect school; 37x88 ft.; 2 stories and basement; reinforced concrete and brick; 4-ply wood, felt, tar and gravel roof; double floors with deadening felt; 5-ply concrete sidewalks; cost \$10,000; steam heat, \$1200; electric lights; C. E. Hair, Archt., Oklahoma City. (Lately noted.)

Okla., Tulsa.—School Board let contract for heating and plumbing \$300,000 high school at \$73,714 to Cook-McDonnell Heating Co., Oklahoma City; Van Horn & Brickner Contr. Co., general contractor, Tulsa; Geo. Winkler, Archt., Tulsa. (Previously detailed.)

S. C., Rowesville.—Trustees, G. W. Dukes, Chmn., let contract to B. E. & L. H. Grandy, Pickens, S. C., to erect graded school; 6 classrooms and auditorium; brick; tin roof; wood floors; furnace heat; cost \$9000; Wilson & Sompayrac, Archts., Columbia, S. C. (Lately noted.)

S. C., Gaffney.—School Dist. No. 10 let contract at \$18,388 to V. I. Spurgeon and J. L. Mooney, Gaffney, to erect school; 10 rooms; 117x55 ft.; brick; tar and gravel roof; joist floor construction; F. H. & J. G. Cunningham, Archts., Greenville. (Lately noted.)

Tex., Alice.—Alice Ind. School Dist. let contract to R. D. Hudson, Alice, to erect school; 59x73 ft.; 2 stories; brick; Johns-Manville asbestos shingle roof; wood joist floors; cost \$10,087; Guy Dale, Archt., Corpus Christi, Tex. (Lately noted.)

Tex., Austin.—Trustees Govalle School Dist. let contract to Brydson Bros., Austin, to erect rural school building; 3 rooms; brick and frame; shingle roof; sanitary floors; individual heaters; cost \$4000; Kuehne, Chasey & Giesecke, Archts., Austin.

Tex., Cholo Valley.—Trustees School Dist. No. 29 let contract to Gus Berkner, 903 Lopez St., San Antonio, to erect school building; brick and tile; gravel roof; wood floors; jacketed stoves; no heating or lighting plants; cost \$9000; Reuter & Harrington, Archts., San Antonio. (Lately noted.)

Tex., Elmo.—School Board, R. S. Stuart, Secy., let contract to erect school building; Geo. Lindsay, Archt., Greenville, Tex.

Tex., Houston.—Trustees let contract to Perry & Brunshy, Houston, to erect 1-story school building.

Tex., Lampasas.—School Board let contract to J. H. Wagoner, Lampasas, to erect school; 2 stories; 6 rooms; 46x71 ft.; stone and mill construction; Barrett specification tar and gravel roof; pine floors; metal ceiling, cost \$8000; heating plant about \$360; contractor will purchase materials; C. H. Leimbach, Archt., Southwestern Life Bldg., Dallas, Address Contractor. (Previously noted.)

Tex., Lampasas.—Trustees let contract to Casbeer & Nichols, Lampasas, to erect high school building; white limestone construction.

Tex., Lometa.—School Board let contract to J. F. Drew, Lometa, to erect school; brick and frame; 2 stories; electric wiring and fixtures; 8 rooms; will erect small auditorium to present structure; cost \$10,000; C. H. Leimbach, Archt., Southwestern Life Bldg., Dallas. (Previously noted.)

Tex., Rio Vista.—Trustees let contract at \$14,577 to Ewing & Marchant, Paris, Tex., to erect high school. (Previously noted.)

Tex., Rowlett.—School Board let contract to W. J. Galey, Mineral Wells, Tex., to erect school; 6 rooms; brick; 71x54 ft.; 2 stories; tar and gravel roof; cost \$8000; C. H. Leimbach, Archt., Southwestern Life Bldg., Dallas.

Tex., Sterrett.—School Board let contract to Few & Richards, Waxahachie, Tex., to erect school; brick; gravel roof; metal ceiling; cost \$8350; Robt. S. Glenn, Archt., Campbell Bldg., Sweetwater, Tex.

Tex., San Antonio.—School Board let contract to O. A. Balcom, San Antonio, to erect school on West Euclid Ave.; about 60x60 ft.; brick veneer; composition roof; wood floors; ventilating heaters; electric lights; cost \$6300; Ralph Cameron, Archt., State Bank Bldg., San Antonio. (Lately noted.)

Va., Pulaski.—Trustees let contract to J. Foy Hall, Pulaski, to remodel grammar school; new floors; heating system, etc.

Va., Luray.—School Board let contract to Heiston, Miller & Co., Luray, to erect school at Leaksville; 2 classrooms, 18x28 ft. each; 9-ft. passageway; 2 cloak rooms; assembly hall on upper floor.

STORES

Ark., Hamburg.—Tom and Jack Compere let contract to erect 2-story brick business building.

Ark., Little Rock.—J. H. Levick & Son, Little Rock, have contract to erect Tennenbaum Bldg. at 367 Scott St., for which Theo. M. Sanders, Little Rock, prepared plans; 3 stories; mill construction; elevator and sprinkling system; cost \$12,000.

Fla., Brooksville.—Mrs. J. W. McIntosh let contract to C. M. Emerson, Brooksville, to erect store building; 1 story; brick.

Fla., Clearwater.—M. W. Ulmer let contract to John Phillippoff, Clearwater, to erect concrete business block; 1 story; 8 stores.

Fla., Eustis.—L. J. Taylor let contract to erect store, flat and office building. (See Bank and Office.)

Ga., Columbus.—T. T. Miller has plans by T. W. Smith & Co., Columbus, for store building; 25x130 ft.; brick; tin roof; wood floors; cost \$13,000; construction in charge of foreman; all contracts let; construction begins July 3.

Ga., Savannah.—T. L. Richardson let contract to Excellsor Construction Co., Savannah, to erect store and apartment building.

Ky., Louisville.—Enterprise Realty Co. let contract to Litchfield Metzner Co., Louisville, to erect store building; 30x49 ft.; brick; tile roof and floors; cost \$12,000; Loomis & Hartman, Archts., Louisville. (Lately noted.)

La., New Orleans.—H. Gumbel let contract at \$9720 to remodel brick building, 519-25 Canal St.

Mo., Joplin.—I. O. O. F. let contract to erect business and lodge hall. (See Association and Fraternal.)

Mo., St. Louis.—Rubican Real Estate Co. let contract to J. H. Schaefer, St. Louis, to erect 1-story store; also remodel store; brick; cost \$6000.

Mo., St. Louis.—Freund estate let contract to Theo. Ratz, St. Louis, to erect 2-story store building; brick; cost \$20,000.

Mo., St. Louis.—Clara Investment Co. let contract to erect store and tenement building. (See Dwellings.)

Tenn., Morristown.—G. W. Ivy let contract to J. W. Morelock, Morristown, to erect business building; 30x125 ft.; brick; wood floors; steam heat; electric lighting; cost \$10,000 to \$12,000; J. F. Bauman, Archt., Knoxville.

Tex., El Paso.—Mrs. T. T. Beall let contract to erect store and apartment building. (See Apartment-houses.)

Tex., Colorado.—Judge C. H. Earnest let contract to Balfanz & Jones, Temple, Tex., to erect business building; 1 story; brick; 100x140 ft.; David Castle, Archt., Abilene, Tex. (Lately noted.)

Tex., Paris.—C. I. Board let contract to J. L. Stockley, Paris, to erect business building; 2 stories; brick; Lang & Wittchell and Curtis, Broad & Lightfoot, Archts., Paris.

Tex., Paris.—Gibbons Estate let contract to Al Greiner, Paris, to erect 2-story brick business building; frontage 129 ft.; Lang & Wittchell and Curtis, Broad & Lightfoot, Archts., Paris.

Tex., Paris.—Morgan P. Alexander let contract to R. L. Lowry, Paris, to erect 2-story brick business building; Lang & Wittchell and Curtis, Broad & Lightfoot, Archts., Paris.

Tex., Paris.—Ragland & Broad let contract to F. A. Byer, Paris, to erect 2-story brick

business building; Lang & Wittchell and Curtis, Broad & Lightfoot, Archts., Paris.

Tex., Paris.—W. G. Freese let contract to Buchanan & Glider, Paris, to erect 2 business buildings; 1-story; brick; Lang & Wittchell and Curtis, Broad & Lightfoot, Archts., Paris.

Va., Bedford City.—People's Bank let contract to erect store, bank and office building. (See Bank and Office.)

THEATERS

Fla., Daytona.—H. T. Titus, Mgr., New Daytona Theatre, let contract to M. L. Crews, Daytona, to improve building; remodel front; elevated flooring; provide rest rooms; erect ticket booth, etc.

Ga., Augusta.—R. O. Lombard let contract to Palmer-Spivey Construction Co., Augusta, to erect Majestic Theater; reinforced concrete; fireproof; heating not determined; composition roof; arcade entrance; offices on second floor; also several stores; contracts for steam-heating system, electrical work, fixtures and decorations not yet awarded; cost \$50,000; operated by Majestic Theater Co.; G. Lloyd Precher, Archt., Johnston Bldg., Augusta. (Lately noted.)

N. C., Durham.—J. H. and M. D. Harris let contract to Wilkerson & Bowles, Durham, to erect theater to be leased to E. T. and W. F. Crall, of Newport News, Va.; 2 stories; brick; fireproof; seating capacity, 700 to 800; cost \$20,000; completion by Sept. 1. (Lately noted to erect store and hotel building.)

WAREHOUSES

Fla., Miami.—Frank T. Budge let contract to Jno. Muller, Miami, to erect warehouse; 28x100 ft.; 2 stories; concrete; asbestos roof; double floors; cost \$1500. (Lately noted.)

Ga., Augusta.—Jacob Phinzy let contract to Wm. F. Rowe, Augusta, to erect cotton warehouse; brick; tin roof; concrete floor; slow-burning construction; cost \$14,000; plans by Goodrich, Hoefler & Clark, 401 Harrison Bldg., Augusta.

Md., Baltimore.—Drury-Lazenby Co., 410 Guilford Ave., has plans by Robert H. Hughes, 104 E. Saratoga St., Baltimore, and let contract to Reynolds & Hughes, same address, Baltimore, to erect warehouse; 5 stories; brick; 23,726 sq. ft.; cost \$4000.

N. C., Ahoskie.—Planters Warehouse has plans by and let contract to D. L. Thomas, Ahoskie, to erect tobacco warehouse; brick; tin roof; wood floors; electric lights; cost \$7350. (Lately noted.)

Tex., Beaumont.—E. L. Wilson Hardware Co. let contract to erect warehouse; 180x300 ft.; brick and concrete; cost \$35,000. (Lately noted.)

Tex., Paris.—Paris Grocer Co. let contract to W. R. Hatcher Construction Co., Paris, to erect brick addition to warehouse; Lang & Wittchell and Curtis, Broad & Lightfoot, Archts., Paris.

Va., Danville.—Piedmont Warehouse Co. let contract to L. B. Flora, Danville, to remodel building for warehouse; cost \$12,000. (Lately noted.)

Va., Norfolk.—Norfolk Warehouse Assn. let contract at \$15,000 to R. R. Richardson & Co., Norfolk, to construct fireproof walls separating sections in cotton warehouses.

MACHINERY, PROPOSALS AND SUPPLIES WANTED

Manufacturers and others in need of machinery or supplies of any kind are requested to consult our advertising columns, and if they cannot find just what they wish, if they will send us particulars as to the kind of machinery or supplies needed we will make their wants known free of cost, and in this way secure the attention of manufacturers and dealers throughout the country. The Manufacturers Record has received during the week the following particulars as to machinery and supplies wanted.

"WANTS"

Air Compressor.—Hackley Morrison, P. O. Box 120, Richmond, Va.—Air compressor; 600 to 1000 cu. ft. capacity.

Air Compressor.—J. W. Hoopes, 335 27th St., Newport News, Va.—Prices on small portable air compressor outfit to use with gasoline engine, capacity for drilling not less than 1/2-in. hole in structural steel.

Air Compressors.—Bureau Supplies and Accounts, Navy Department, Washington, D. C.—Bids until July 3, for delivering air compressors at Navy Yard, Boston. Apply for proposals to supply officer, Navy Yard, Boston, or to Bureau.

Bakery Equipment.—See Heating Plant, etc.—Kentucky State Board of Control.

Bank Fixtures.—C. M. Mendenham, First National Bank, Snow Hill, N. C.—Prices on safe, vault and other bank fixtures.

Bank Fixtures.—Chas. Graff, Crescent, Okla.—Prices on safe, vault and bank fixtures.

Bridge Construction, etc.—Karnes County Commrs., T. B. Sniley, County Judge, Karnes City, Tex.—Bids until July 5 to construct concrete head walls, dikes, culverts and bridges in Road Dist. No. 3; plans and specifications on file with County Clerk at Karnes City and with Engrs., Hess & Skinner, Dallas, and may be obtained for \$10.

Boiler.—One Fire Asphalt Plant Co., Chattanooga, Tenn.—25 H. P. boiler, second hand; good condition.

Building Materials.—E. E. Juddins, North Holston, Va.—Information on all kinds of building materials for bungalows.

Building Materials.—Jas. H. Post, 406 Realty Bldg., Charlotte, N. C.—To represent manufacturers of special building material.

Building Materials.—J. F. Barbour or N. S. Valhoun, care Bank of Maysville, Maysville, Ky.—Communications from architects, builders and safe manufacturers on erecting or remodeling bank building.

Bulkhead Construction.—Galveston County Commrs., John M. Murch, County Auditor, Galveston, Tex.—Bids until July 17 to construct reinforced concrete pile bulkhead on north side of seawall boulevard from Broadway to 22d St.; 700 ft.; plans and specifications on file with County Auditor.

Clayworking Equipment.—Gulf Cup & Still Co., Pensacola, Fla.—Machinery to manufacture clay turpentine cups.

Clothing Machinery.—See Sewing Machinery—Blanton-Wise Co.

Coke.—Bureau Supplies and Accounts, Navy Department, Washington, D. C.—Bids until July 3, for delivering coke at Navy Yard, Charleston, S. C. Apply for proposals to supply officer, Navy Yard, Charleston, S. C., or to Bureau.

Conveying (Aerial) Machinery.—P. Montgomerie, 29 Rue Sadi Carnot, Troyes, France.—Data and estimates on construction of system to load and unload vessels by aerial cables; pylons to be on special buoys anchored on steel columns on bed of sea; 2000 metre line; capacity 40 to 100 tons hourly.

Conveying Machinery.—L. F. Bellinger, Prest., Coco Cola Bottling Co., Pine Bluff, Ark.—Catalogues and other information relative to all kinds of elevating and conveying machinery; new or second hand.

Desks (School).—City of Dyersburg, Tenn., L. E. Carne, Mayor.—Bids until Aug. 10 for 250 to 300 school desks; send prices, together with full description, etc.

Dragline or Cableway Excavator.—C. H. Harrell, Haymarket, Va.—Second-hand dragline or cableway excavator of small capacity for excavating sand in narrow river.

Drainage System.—Combahee Corp., Consolidated Company Bldg., Charleston, S. C.—Bids until July 26 for 6-9-10 mi. levee, 190,000 yds.; 6 mi. open ditch, 80,000 yds.; pumping plant to include 2 units, each unit having internal combustion engine with pump, etc.; both units capacity, 35,000 gals. per min. at static head 3 ft.; bids on levee and ditch combined or on each separately; plans, specifications, etc., on file in office of company, of F. G. Eason, U. S. Drainage Engr., P. O. Bldg., Charleston, and of C. W. Okey, U. S. Drainage Engr., Tulane University, New Orleans.

Dredging.—Buckfield Stock Farms, Yemassee, S. C.—Bids to construct several drainage canals, involving total of 150,000 cu. yds. excavation; excavation with dredge that spans ditch; maximum bottom width, 20 ft.; maximum depth, 6 ft.; side slopes, $\frac{1}{2}$ to 1; plans and specification furnished to bidders.

Electrical Machinery.—See Sulphur Plant Equipment—Freeport Chemical Works.

Electrical Machinery.—Troy Cross-Arm Co., Troy, N. C.—Transformers of 50 to 100 K. W. and 11,000 to 2300 voltage, 3-phase, 60-cycle.

Electric-light Fixtures.—Central Baptist Church, Grenada, Miss.—Prices on electric-light fixtures for \$7000 church.

Electric Motor.—Cheraw Oil & Fertilizer Co., Cheraw, S. C.—50 H. P. motor; 60 cycles, 550 volts.

Electric Motors.—Hackley Morrison, P. O. Box 120, Richmond, Va.—50 H. P. A. C. 3-phase 60 cycle 550-volt motor; 100 H. P. 2200-volt 3-phase 60-cycle motor.

Electric Motor.—Sewerage and Water Board, F. S. Shields, Secy., Room 508, City Hall Annex, New Orleans, La.—Bids until July 3 to furnish 75 H. P. electric motor; specifications with blank proposal forms furnished on application; Geo. G. Earl, Gen. Supt.

Elevators.—Treasury Dept., Jas. A. Wetmore, Acting Supervising Archt., Washington, D. C.—Bids until Aug. 2 to install complete electric freight elevator and remodeling 2 electric passenger elevators in custom-house at New Orleans, La.; plans and specifications at offices Supt. of Construction, Custom-house, New Orleans, and Mr. Wetmore.

Engine.—Harvey Co., 113 South St., Baltimore, Md.—Corliss engine; 12x30 in.

Engine.—One Fire Asphalt Plant Co., Chattanooga, Tenn.—25 H. P. engine; second hand; good condition.

Feed-water Heater.—R. P. Johnson, Wytheville, Va.—Second-hand feed-water heater for 100 to 150 H. P. boiler.

Floor Scraper.—J. M. Thomas, Hawkins St., Sanford, N. C.—Electric floor scraper.

Food Products.—Enrique Pinetel, Apartado de Correos 160, Santo Domingo.—To represent shippers of hogs' lard, meats, etc., salt fish, codfish, herring, flour mill, etc.

Gasoline Machinery.—K. O. Knudson, Clifton, Tex.—Data and prices on machinery to manufacture casing-head gasoline from natural gas for Texas installation.

Gunning (Moss) Machinery.—J. F. Bashaw, Gainesville, Fla.—To correspond with manufacturers of moss gunning machinery.

Hardware, etc.—Panama Canal, Earl I. Brown, General Purchasing Officer, Washington, D. C.—Bids until July 14 to furnish marble for laboratory, hardware for marble work, steel angles and plates, soft-steel bars, rock-cutter heads and blades, sheet brass, machine bolts, rivets, nails, screws, staples, screw eyes, brass nuts, door bolts, hinges, hasps, wardrobe locks, screen door catches, furniture casters, file handles, shelf brackets, storage battery, warehouse trucks, hydraulic valve, cocks, oiler spouts, pulleys, chain blocks, snatch blocks, coal baskets, buckets, corn brooms, floor brushes, flue brushes, scythestones, lantern globes, lamp chimneys, graduating glasses, tables, chairs, rat traps, mattress hair, twine and basswood lumber; blanks and general information (Circular 1055) obtainable from this office or offices of assistant purchasing agents, 24 State St., New York; 614 Whitney Central Bldg., New Orleans, and Fort Mason, San Francisco; also from U. S. Engr., offices in Seattle, Los Angeles, Baltimore, Philadelphia, Pittsburgh, Boston, Buffalo, Cleveland, Cincinnati, Chicago, St. Louis, Detroit, Milwaukee, St. Paul, Chattanooga, Louisville, Mobile and Galveston; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash.

Hardware, etc.—S. Kulker, Sarphatistraat 87, Amsterdam, Holland.—To represent manufacturers of confectionery; lead pencils; toilet soap; cutlery; zinc white; woolen stuffs; underwear; men's and ladies' stuffs, etc.

Heating Plant.—Central Baptist Church, Grenada, Miss.—Prices on small heating plant for \$7000 church.

Heating Plant, etc.—Kentucky State Board of Control for Charitable Institutions, J. Norton Fitch, Prest., Frankfort, Ky.—Bids until July 8 at office of Supt. Central State Hospital, Lakeland, Ky., for heating, plumbing, sewerage, electric wiring and kitchen and bakery equipment for kitchen and bakery building, Central State Hospital, Lakeland; plans and specifications on file with Kentucky State Board of Control for Charitable Institutions, Frankfort, Ky.; with Supt. of Central State Hospital, and with D. X. Murphy & Bro., Architects, Louisville, Ky.

Heating Plant, etc.—Directors School Dist. of Kansas City, Mo., Jas. B. Jackson, Jr., Secy.—Bids until July 6 to furnish material and labor for installing heating and ventilating, plumbing, temperature regulation, electric wiring and electrical generating sets in public library building and addition, Ninth and Locust Sts., plans and specifications on file with J. H. Brady, Ch. Engr., 517 Finance Bldg., Kansas City.

Ice Plant Equipment.—E. E. Robinson, Box 65, Ruskin, Fla.—Ice plant equipment.

Ice Plant.—S. & S. Plantation, San Denito, Tex.—Data and prices on ice plant equipment.

Knitting Machinery.—R. E. Barnes, Kittrell, N. C.—Data and prices on hosiery knitting machinery.

Lamps.—Bay Biscayne Co., C. A. Muller, Secy., Miami, Fla.—To buy (from manufacturers) 8 ornamental street lamps; type with large ball on top and four arms with smaller side globes.

Laundry Machines.—Navy Department, Bureau Supplies and Accounts, Washington, D. C.—Six laundry machines; delivery Annapolis, schedule 9810.

Levee Construction.—Levee Board, T. G. Dabney, Ch. Engr., Clarksdale, Miss.—Bids until July 3 for following levee enlargement: Levee sections 22, 23 and part 24, containing 201,000 cu. yds.; sections 37 to 42, inclusive, containing 383,000 cu. yds.; sections 73 to 81, inclusive, containing 1,294,000 cu. yds.; work to be done in 1916 and 1917; also sections part 9H, all of 10 and 11-H, part 14-H, all 15-H, part 16-H, all 17-H to 22-H, inclusive, on old front line, containing 363,000 cu. yds.; latter (2) to be done in 1917 and 1918; making of contracts is contingent on sale of bonds; for information address T. G. Dabney, Ch. Engr.

Lumber.—Bureau Supplies and Accounts, Navy Department, Washington, D. C.—Bids until July 3, for delivering white oak and white and yellow pine at Navy Yard, Washington.

Machine Tools.—Houston Blow Pipe & Sheet Metal Works, 2010 Congress Ave., Houston, Tex.—Rotary splitting shear, back geared 12 in. to 15 in. throat to split up to 3/16 in. plate, hand or power; 48-in. metal roll, back geared for hand or power to roll up to 3/16-in. plate; 48-in. square shear, hand or power to square up to 16 gauge steel; second hand; first-class condition.

Manufactured Products.—Dana & Barton, Avenida Rio Branco, Rio de Janeiro, Brazil.—Samples, prices, terms, etc. (view to representation) from manufacturers of machinery, steam engines, electric motors, silk fabrics, cotton and woolen goods, footwear, chemical and pharmaceutical articles, novelties, advertising specialties, optical apparatus, optician supplies, photo films for teaching and advertising, etc.

Manufactured Products.—J. Carreira Junior, Recife, Pernambuco, Brazil.—Catalogs, prices, samples, terms of sale, etc. (view to representation) on following: Flour in sacks and barrels; canned foods and fruits; drugs of all kinds; sodas; potash; acids; paints; oils; varnish; turpentine; paraffine; cottonseed oil; sugar mills; bottles; Portland cement (any kind); hardware and cutlery; tiles 15x15 cm. x 1 cm.; sanitary goods of all kinds; cotton, wool and silk textures; writing materials; paraffine paper; electrical and gas supplies; automobiles; bicycles and supplies; agricultural machinery; typewriting machines; gas and water pipes; sewing machines and equipments for same; glass for mirrors and frames; photograph and moving picture supplies; gasoline; corrugated zinc; "Flandres coke" leaves, 56 and 112 in box; "American coke" leaves, 1 C. 20x28; leather; shoes of all kinds; rubber shoes; window glass and glass paint; optical outfits; dental and medical instruments and supplies; barber's goods; chairs; razors; brushes; barbed wire of different kinds; locks of all kinds; bank and safe locks; clothing for men and women; dress trimmings; buttons.

Mimeograph.—R. P. Johnson, Wytheville, Va.—Second-hand mimeograph machine.

Mixer (Paving).—Wm. Larner & Co., P. O. Box 512, Staunton, Va.—Street paving mixer.

Motor Trucks.—Board of Health, Miami, Fla.—Prices on electric garbage truck.

Paving.—Baltimore (Md.) Board of Awards, City Hall.—Bids until July 5 to grade, curb and pave Baltimore St. from Garrison lane to Ellicott Driveway, Contract No. 147; 5000 sq. yds. sheet asphalt, 2300 lbs. ft. curb and 10,000 cu. yds. grading; specifications obtainable from Commrs. for Opening Streets, John H. Robinette, Prest., City Hall.

Paving.—City of Troy, Ala., Lawrence E. Gellerstedt, Mayor.—Bids until June 28 to construct 17,000 to 20,000 yds. paving; brick, bitulthic or wood block; drawings and specifications on file with City Engr.

Paving.—City of Harrisonburg, Va., E. A. Zigler, Chmn., Street Committee.—Bids until July 5 to construct 18,000 sq. yds. vitrified brick and asphalt block pavement; plans and specifications from City Clerk.

Paving.—City of Versailles, Ky., Harry C. Taylor, Mayor.—Bids to construct 4000 sq. yds. vitrified brick pavement on concrete base, grade street and construct 1400 lin. ft. concrete curb; Chas. E. Collins, Engr., Drexel Bldg., Philadelphia, Pa.

Paving.—City of Hazard, Ky., W. H. Pursfull, Mayor.—Bids until July 12 for 21,000 sq. yds. concrete street paving; plans and specifications on application.

Paving.—City of Erwin, Tenn., N. T. Tucker, Mayor.—Bids until July 12 for street paving, curbing, guttering, etc.; plans and specifications on application to City Engr.

Paving, etc.—Galveston County Commissioners, John M. Murch, County Auditor, Galveston, Tex.—Bids until June 30 to construct sidewalks, curbing, copings, etc., on seawall boulevard, between 37th and 39th Sts.; plans and specifications on file with County Auditor; copies on application.

Paving.—Henry Chandler, City Clerk, Okeechobee, Fla.—Bids until July 5 to construct sidewalks on east side of Okeechobee Ave. from South Park to 7th St.; north side 7th St. to Osceola St.; west side Osceola St. to North Park St., and east side Osceola St. from South Park to North Park St.; specifications on request.

Paving.—Town of Erwin, Tenn., N. T. Tucker, Mayor.—Bids until July 12 for street paving, curbing, guttering, etc.; plans and specifications on file with Town Engr.

Pipe.—Joel Dean, G. F. and P. A., Asherton & Gulf Ry. Co., Asherton, Tex.—3000 ft. 3½ or 4-in. and 5000 ft. 2 or 2½-in. standard weight steel or wrought-iron pipe; second-hand if good for 100 lbs. pressure will answer; threaded 2 ends, with couplings.

Pipe (Galvanized Iron).—J. W. Hoopes, 335 27th St., Newport News, Va.—Prices on about 500 ft. 12-in. sheet-iron pipe, No. 16 gauge, 18 ft. long, black and galvanized.

Printing Machinery.—R. P. Johnson, Wytheville, Va.—Printing machine for wood boxes.

Pumps.—Nashville Bridge Co., Nashville, Tenn.—Several 3-in. centrifugal pumps, driven by gasoline engines; short drive or direct connected.

Plumbing Fixtures.—W. M. Davis, 1113 Eighth Ave., South, Nashville, Tenn.—Catalogues of special plumbing fixtures for nursery building at orphanage.

Pumping Plants.—See Drainage System, Combahee Corp.

Pumping (Turbine) Machinery.—City of Erie, Pa.—Bids July 14 on 23,000-gal. turbine-driven auxiliary pumping unit for main pumping station, city water-works; Chester & Fleming, hydraulic engineers, Pittsburgh, Pa.

Pump.—Hackley Morrison, P. O. Box 120, Richmond, Va.—Large underwriters' duplex fire pump.

Punch and Shears.—J. W. Hoopes, 335 27th St., Newport News, Va.—Prices on punch and shears for ½-in. steel; second-hand, good condition.

Rails.—Standard Talc Co., Chatsworth, Ga.—600 ft. light steel rail with all connections and spikes; prefers 16-lb. rail.

Road Construction.—Charles City County Commrs., Charles City, Va.—Bids until July 5 to construct 2 mi. gravel road between Turkey Island Bridge and Charles City courthouse plans and specifications on file at clerks' office, Charles City; specifications on application; G. P. Coleman, State Highway Commr., Richmond.

Road Construction.—Ritchie County Commrs., J. N. Sharpnack, Clerk County Court, Harrisonville, W. Va.—Bids until July 7 to pave with brick on concrete foundation, concrete and macadam sections of following roads: 11 mi. Northwestern Turnpike, Mole Hill and Pullman Roads; plans and specifications on file with County Clerk, Harrisonville; store of Grant Luzader, Pennsboro, W. V., office State Highway Engr., Morgantown, W. Va., and office Dudley D. Britt, Engr., Clarksburg, W. Va.

Road Construction.—Board of Revenue and Road Comms. of Mobile County, O. A. Alvarez, Clerk, Mobile, Ala.—Bids until July 1 to construct section of Delta Highway lying within Mobile County; bids for highway as whole connecting Mobile and Baldwin Counties may be submitted, but amount for that portion lying in Mobile County to be designated separately; plans and specifications to be submitted with bids.

Road Construction.—Montgomery County Commrs., John R. Lewis, Prest., Rockville, Md.—Bids until July 18 to construct 4½ mi. State-aid highway upon or along Poolesville Rd. between Dawsonville and Poolesville; bids to be made on blank forms obtainable from State Roads Commission, 601 Garrett Bldg., Baltimore; plans can be seen and forms of specifications and contract obtainable for \$1 from State Roads Commission.

Road Construction, etc.—Hopkins County Commrs., Dan R. Junell, County Judge, Sulphur Springs, Tex.—Bids until July 1 to furnish materials and construct public highways for Road Dist. No. 1; work to embrace following: Grading 250,000 cu. yds.; macadam stone, 36,000 cu. yds.; asphalt, 50,000 gals.; gravel, 40,000 cu. yds.; concrete paving, 13,000 sq. yds.; concrete in bridges and culverts, 2500 cu. yds.; steel beams for concrete bridges, 200,000 lbs.; steel reinforcement, 250,000 lbs., etc.; plans and specifications from John M. Murch, County Auditor, or J. F. Witt, Engr., Dallas, for \$10.

Road Construction.—Road Supvrs., Road Dist. No. 3, Tangipahoa Parish, Chas.

Buck, Chrmn., Independence, La.—Bids at office of Police Jury, Amite, La., until July 5 to construct 20 mi. of road, or any part thereof; profiles, specifications, etc., furnished by John E. Kerrigan, Hammond, La., or by Chas. Buck, Chrmn., Independence, La.

Road Construction.—Marshall County Commrs., Courthouse, Guntersville, Ala.—Bids until Aug. 1 to grade, drain and gravel 4 mi. Guntersville and Huntsville Rd., beginning at end of present graded road; W. S. Keller, State Highway Engr., Montgomery, Ala.

Road Construction.—Elmore County Commrs., Wetumpka, Ala.—Bids until July 24 to construct roads in four Commrs. Dist.; expend \$17,000; bids for four districts separately and also for county as whole.

Road Construction.—Fulton County, C. M. Holland, purchasing agent, 507 Courthouse, Atlanta, Ga.—Bids until July 15 for constructing, under separate contracts, following: Paces Ferry Rd., 35,000 sq. yds.; E. Paces Ferry Rd., 6,000 sq. yds.; Lakewood Ave., 13,000 sq. yds.; Mayson and Turner Rd., 25,000 sq. yds.; Hightower Rd., 19,000 sq. yds.; Zoo Drive in Grant Park, 6,000 sq. yds.; specifications and further information on application.

Safe.—See Bank Fixtures.—Chas. Graff.

Sentling.—Union Point Baptist Church, R. F. Bryan, Union Point, Ga.—About \$1000 worth of pews for new church.

Safes.—See Building Materials.—J. F. Barbour or N. S. Calhoun.

Sewage-disposal Plant.—Kuehne, Chas. & Gleescke, Austin, Tex.—Prices on sewage-disposal plant.

Sewer Construction.—See Water-works, etc.—City of Copperhill, Tenn.

Sewer Construction.—City of Henderson, N. C., M. H. Stone, Mayor.—Bids until July 18 to construct 10,000 ft. 8 to 12-in. sanitary sewers and sewage-disposal plant, consisting of Imhoff tank, contact beds and sludge drying bed; plans and specifications on file at office City Clerk and of Consult. Engrs., Anderson & Christie, Inc., Charlotte, N. C.; address Engrs. for additional information; plans and specifications obtainable from Engrs. for \$10.

Sewer Construction.—City of Tulsa, Okla., H. H. Wyss, City Engr.—Bids until June 29 to construct 36-in. and 48-in. 2-ring brick and concrete storm sewer at 11th St. and Galveston Ave.; plans, profiles and specifications on file with City Engr.

Sewer Construction.—City Commrs., Tulsa, Okla.—Bids until July 3 to construct sanitary sewer system, including laterals, outlets, etc., for Sewer Dist. No. 105 and until July 6 to construct sanitary sewers, including laterals, outlets, etc., in Sewer Dist. Nos. 109, 110 and 111; plans, profiles and specifications on file with H. H. Wyss, City Engr.

Sewer Construction.—City of Birmingham, Ala., Julian Kendrick, City Engr.—Bids to construct sanitary sewers under Improvement Ordinance No. 913-C; bids opened June 27; specifications and plans on file with City Engr.

Sewer Construction.—City Com., City Hall, Shreveport, La.—Bids until July 3 to construct sanitary sewers in south and west districts; City to furnish pipe and specials; plans and specifications on file with John B. Hawley, Const. Engr., City Hall, Shreveport; Leon I. Kahn, Commr. of Public Utilities.

Sewing Machinery.—Blanton-Wise Co., investment bankers, 315 Kress Bldg., Houston, Tex.—Addresses of makers of machinery for manufacturing overalls and other similar garments.

Sprinkler Systems.—J. W. Hoopes, 335 27th St., Newport News, Va.—Data and prices on sprinkling systems for factories and warehouses.

Steel Ceiling.—Central Baptist Church, Grenada, Miss.—Prices on steel ceiling for church building 60x60 ft.

Sulphur Plant Equipment.—Freeport Chemical Works, Freeport, Tex., and 624 California St., San Francisco, Cal.—Bids during July (duplicate proposals to Freeport and San Francisco) for furnaces, electric motors, etc., for Freeport plant with daily capacity 50 tons refined sulphur, flow-ers of sulphur and rock sulphur.

Tank and Tower.—Hackley Morrison, P. O. Box 126, Richmond, Va.—3000-gal. tank on 30 or 40-ft. tower.

Tires, Tubes, etc.—Hall Printing Co., Woodville, Fla.—Dealers' prices and terms on automobile tires, tubes, etc.

Tools, Hardware, etc.—Navy Department, Bureau Supplies and Accounts, Washington, D. C.—612 chopping axes, delivery Boston and Norfolk; 144 expansive bits, Norfolk; 60 hand drills, Philadelphia; 30 ratchet and 1008 adjustable hacksaw frames, Norfolk; 30,000 brass ditty box hinges, Norfolk; four 4-ton hydraulic jacks, Boston; worm geared jacks, Boston; saws and planes, Philadelphia, Boston, New York; 300 gasoline torches, Philadelphia; bench vices, Philadelphia; all schedule 9811.

Vaults.—See Bank Fixtures.—C. Mendanhan.

Vault.—See Bank Fixtures.—Chas. Graff.

Vaults.—Treasury Dept., Jas. A. Wetmore, Acting Supervising Archt., Washington, D. C.—Bids until Aug. 2 to construct complete (including equipment) 3 interior safety vaults of reinforced concrete in custom-house at New Orleans, La.; plans and specifications at offices Supt. of Construction, Custom-house, New Orleans, and Mr. Wetmore.

Water-works.—Town of Mound Bayon, Miss., S. H. Harris, Clk.—Bids until July 13 for 4-in. artesian well, oil engine and pump, fire hydrants, gate valves, cast and wrought-iron pipe, etc., for water works; plans and specifications on file.

Water-works.—Water Commrs., J. W. Neave, Supt., Salisbury, N. C.—Bids until July 12 to construct filtration plant and secure new source of water supply; includes laying 5½ in. cast-iron pipe either 14 or 16 inches in diam., furnishing and installing motor-driven centrifugal pumps, filtration plant, filter house, reservoir, power station, gate valves, tower and tank, transformers and other appurtenances; plans and specifications on file.

RAILROAD CONSTRUCTION

RAILWAYS

Ark., Scranton.—Construction of the extension of the Fort Smith, Subco & Eastern R. R. from Scranton to Dardanelle, Ark., 22 mi., will begin July 1. Estimated cost approximately \$25,000. Henry Stroup, Paris, Ark., is Pres.

Fla., Clearwater.—Martin Caraballo has applied to the Council for a franchise through the city for a proposed interurban railway to run from Tampa to Sutherland, with branches from there to Lake Butler and Tarpon Springs, and to Dunedin, Clearwater, Belleair, Largo and St. Petersburg.

Fla., Pensacola.—Geo. H. Hervey says it will be some time before he can announce his plans for the proposed electric railway for the construction of which on the Fort Barrancas and Fort McRae military reservations a bill has been passed by Congress.

Fla., St. Petersburg.—George S. Gandy, Wayne Trust Co., Philadelphia, Pa., may give information about the plan to build an electric railway from St. Petersburg to Tampa about 20 mi. including a bridge 3 to 4 mi. long across Old Tampa Bay. Company now being organized.

Ga., Atlanta.—Concerning a recent press report that arrangements were completed to finance the proposed Atlanta & Anderson Electric Railway, J. L. Murphy, Gas & Electric Bldg., Atlanta, says that only preliminary moves have been made and any announcement of successful financing is premature. Charter has not been obtained nor has any organization been effected.

La., Myrtle.—Southern Lumber Co., it is reported, will extend its railroad to Jefferson, Tex.

Miss., Vicksburg.—Yazoo & Mississippi Valley Railroad (Illinois Central System) will raise and otherwise improve its tracks between Rolling Fork and Port Gibson, Miss. A. S. Baldwin, Chicago, Ill., is Ch. Engr.

N. C., Thomasville.—Thomasville Terminal Co., capital \$125,000, authorized, with \$5000 subscribed, has been chartered to build and operate electric railways in Thomasville and from there to neighboring points. Subscribers: T. J. Finch, J. W. Lambeth, E. V. Crutchfield, Frank S. Lambeth and R. L. Lambeth.

Okla., Buffalo.—Wichita Falls & Northwestern Railway is reported to have let contract to J. L. Tobey & Co. of Terrell, Tex., to

build about 45 mi. of line. W. A. Webb, Dallas, Tex., is Gen. Mgr.

S. C., Clinton.—Reid Tull, of Spartanburg, S. C., will make preliminary surveys for the proposed lines of the Carolina Rapid Transit Co. to connect Spartanburg, Union, Woodruff, Enoree, Laurens and Clinton, about 85 mi. J. F. Jacobs, of Clinton, and others are interested.

S. C., Spartanburg.—Southern Ry. is reported asking bids to grade for double track from the Union Station to Lawson's Fork Creek, about 1¼ mi. L. G. Wallis is Resident Engr. at Spartanburg.

S. C., Rock Hill.—John T. Roddey is planning construction of a railroad from Rock Hill to Spencer, S. C., about 12 mi.

W. Va., Seth.—Kelly & Duffield of Charleston, W. Va., are reported to have a contract for 4 mi. of work on the extension of the Chesapeake & Ohio Rwy. from Seth to Jarrold's Valley, 14 mi., and at a point about 6 mi. from Whitesville. Boxley Bros. of Orange, Va., general contractors for the extension, have crews at Seth and Whitesville, respectively.

STREET RAILWAYS

Md., Baltimore.—City Council has authorized the United Railways to construct double track line over the new Hanover Street bridge which spans the middle and southwest branches of the Patapsco River. W. A. House is Pres.

FINANCIAL NEWS

The MANUFACTURERS RECORD invites information about Southern financial matters, items of news about new institutions, dividends declared, securities to be issued, openings for new banks, and general discussions of financial subjects bearing upon Southern matters.

FINANCIAL CORPORATIONS

Ala., Birmingham.—Morris Plan Company, Incptd., capital \$100,000, surplus \$10,000, will begin business July 15 with offices in the Birmingham Railway Light & Power Co.'s Bldg. Robt. Jemison will be Pres.; Crawford Johnston, First V.-P.; L. Sevier, Second V.-P.; and H. S. Miller, Secy.-Treas. and Mgr.

Ark., Paragould.—Farmers Bank of Marmaduke and the Bank of Marmaduke, each capitalized at \$15,000, are, it is reported, to be consolidated with an authorized capital of \$25,000. Eli Meier will be Pres. and J. W. Lipscomb, Cash.

Fla., Orlando.—Bank of Orange is chartered; capital \$50,000; U. G. Staton, Pres.; J. F. Ange, V.-P., and J. H. Tucker, Cash.

Fla., St. Augustine.—The St. Augustine Investment Co., capital \$5000, is organized with George L. Estes, Pres.; G. B. Lamar, V.-P., and J. D. Puller, Secy.-Treas.

Fla., St. Petersburg.—A new insurance firm to be known as the Foley, Farmer & Tutbill Agency has been organized to take over the Farmer-Durant-Tutbill Agency.

Fla., Tallahassee.—Lewis State Bank, to succeed the First National Bank, has filed articles of incorporation; capital \$50,000. Directors: Geo. Lewis, Pres.; W. C. Lewis, 1st V.-P.; G. E. Lewis, Cash.; E. B. Lewis and M. E. Lewis.

Ky., Maysville.—The Union Trust & Savings Co., has merged with the Bank of Maysville, and the two institutions will probably form a new corporation. J. F. Barbour is Pres., and R. K. Hoeflich, Cash. of the bank of Maysville; C. C. Calhoun, Pres. and N. S. Calhoun, Secy.-Treas. of the Union Trust & Savings Co. The combined individual deposits of the two banks will be about \$50,000.

La., Delhi.—Macon Ridge National Bank has made application for charter; capital \$25,000.

Mo., Kansas City.—Retailers' National Fire Insurance Co., capital \$100,000, is incorporated by E. G. Trimble, William P. Howard and William T. Woodward.

N. C., Snow Hill.—First National Bank Incptd., capital \$25,000; organizers, J. C. Exum, A. F. Moye, J. P. Frizzell, C. M. Mendenhall, J. S. Hugg and J. Exum. Business is expected to begin about Aug. 15.

Okla., Crescent.—First National Bank has applied for charter; capital \$25,000. Address Chas. Graff. Business is expected to begin about Aug. 15.

Okla., Tulsa.—The Planters' National Bank of Tulsa, a conversion of the Merchants' & Planters' Bank, has made application to organize.

Okla., Tulsa.—National City Bank of Tulsa, capital \$150,000, will soon begin business with W. E. Brown, Pres.; J. P. Byrd, Jr., Cash.; C. F. Hopkins, V.-P.; Lee Clinton, Act. V.-P.

S. C., Norway.—First National Bank of Norway has made application to convert into the Bank of Norway; capital \$25,000.

S. C., Summerville.—Bank of Summerville has been granted a commission; capital \$50,000. Petitioners: Lawrence A. Walker, Legare Walker, Marcus Barshay, T. M. Finucan, A. W. Kornahrens, Robert J. Taylor, C. F. Prettyman and Tristram T. Hyde.

Tenn., Johnson City.—Tennessee Trust Co., capital \$50,000 is to begin business Aug. 1, 1916. Inceptors: J. E. Brading, Chas. E. Cargille, J. A. Summers, Geo. T. Wofford, J. A. Ponder, A. B. Crouch and S. C. Williams, Jas. A. Ponder will be Cash.

Va., Ivor.—Merchants and Farmers' Bank, capital \$25,000 to \$50,000, is organized with L. H. Brantley, Pres.; F. H. Stephenson, 1st V.-P.; T. Philip Ralford, 2d V.-P., and L. C. Pulley, Cash.; W. B. Richardson, Secy. Business is to begin about Oct. 1.

Va., Newport News.—Chestnut Avenue Savings & Loan Co. Incptd.; capital \$5000 to \$100,000. W. J. Knight, Pres.; R. W. West, 1st V.-P.; R. W. Read, Secy.

W. Va., Iaeger.—First National Bank has made application to organize; capital \$25,000.

NEW SECURITIES

Ala., Evergreen.—\$15,000 5 per cent. 30-year Conecuh County road improvement bonds have been purchased at \$103.12 by Otto Marx & Co., Birmingham.

Ala., Mobile.—Election to vote on \$150,000 5 per cent. 29-year \$500 denomination Mobile County school bonds will be held August 1. Address County Commrs.

Ark., Arkansas City.—School bonds Dumas School Dist., Desha county, have been sold. I. N. Moore is Secy. School Board.

Ark., Jonesboro.—\$85,000 school bonds, it is reported, are to be purchased by the Mercantile Trust Co., St. Louis.

Ark., Little Rock.—Bids were received until 10 A. M. June 28 for \$21,000 6 per cent.

Merchants-Mechanics National Bank

South and Water Sts., BALTIMORE, MD.
DOUGLAS H. THOMAS, President.
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Fla., Bartow.—\$20,000 6 per cent. 20-year \$1000 denomination bonds Bartow Special Tax School Dist. No. 7 are voted; dated July 1, 1916; maturity July 1, 1936. Address C. A. Parker.

Fla., Bradenton.—Bids will be received until July 15 for \$16,000 6 per cent. 20-year \$1000 denomination bonds Carr Ditch Drainage Dist., Manatee County; dated Oct. 8, 1915. Robt. H. Roesch is Clerk Board County Commrs.

Fla., Merritt.—\$40,000 bridge bonds are reported voted. Address The Mayor.

Fla., Perry.—Election is to be held July 25 to vote on \$600,000 5 per cent Taylor County road bonds, maturing \$100,000 Jan. 1, 1922, and \$100,000 each five years thereafter. Address County Commrs.

Fla., Jacksonville.—Election will probably be called to vote on bonds for bridge across St. Johns River. Address Chmn. Board County Commrs. Duval County.

Fla., Sebring.—\$50,000 6 per cent. \$500 denomination street improvement bonds dated July 1, 1916 and maturing July 1, 1931 have been purchased at 103 by United States Investment and Savings Bank, Jacksonville, Fla.

Fla., West Palm Beach.—Lake Worth Dist., Palm Beach County, has voted \$55,000 road bonds. Address County Commrs.

Ga., Cochran.—Bids will be opened about July 16 for \$12,000 sewer and \$3000 light and water 5 per cent. 30-year \$1000 denomination bonds. Dated July 1, 1916; maturity July 1, 1946. J. E. Cook is Clk. and Treas.

Ga., Lavonia.—\$45,000 water and sewer and \$5000 school bonds are voted. Address The Mayor.

Ga., Macon.—Election to vote on \$100,000 hospital and \$100,000 auditorium bonds was held June 27. Result not stated. Bridges Smith is Mayor.

Ga., Metter.—Candler County is considering question of issuing courthouse and road bonds. Address Chmn. Board County Commissioners.

Ga., Reynolds.—\$20,000 5 per cent. \$500 denomination Reynolds School Dist. bonds maturing \$1000 annually have been voted. Address W. F. Weaver Reynolds. R. O. Perkins is Secy. Bd. of Education.

Ky., Letchfield.—\$175,000 Grayson county road bonds defeated.

Ky., Morgantown.—Bids will be opened July 15 for \$450,000 4½ per cent. Union County road and bridge bonds. John Bingham is County Clerk and J. L. Lewis, County Atty.

Ky., Nicholasville.—\$43,000 five per cent. Jessamine County road bonds have been purchased at \$625 premium and \$56.50 interest by the Provident Savings & Trust Co., Cincinnati.

Ky., Paducah.—Election to vote on \$400,000 McCracken County road bonds will be held in November. Address County Commrs.

Ky., Prestonsburg.—\$12,800 4½ per cent. 20-year Floyd County road bonds have been purchased at \$273 premium by Breed, Elliott and Harrison of Indianapolis. Claude A. Sittson is County Treas.

Ky., Somerset.—\$300,000 4½ per cent. Putnam County road bonds have been purchased by James E. Caldwell & Sons, Nashville, Tenn.

Ky., Whitesburg.—Bill has been introduced in the City Council asking that election be called to vote on \$10,000 street-improvement bonds. Address Robert Blair.

La., Clinton.—Bids will be received until

10 A. M., July 19, for \$15,000 5 per cent. 10-year \$1500 denomination bonds School Dist. No. 6, East Feliciana Parish. C. W. Ball is Pres. Bd. School Directors of East Feliciana Parish.

La., Crowley.—\$30,000 5 per cent bond, Fourth Ward Drainage Dist., Arcadia Parish, have been purchased by Powell, Garard & Co., Chicago. John M. Marsh is Pres., Bd. of Commrs.

La., Plaquemine.—Bids will be received until 3 P. M. July 18 for \$20,000 5 per cent. \$500 denomination bonds of Bayou Paul Drainage Dist., Iberville Parish; dated July 1, 1916, and maturing serially, beginning July 1, 1917, and ending July 1, 1929. Address Board of Dist. Commrs., G. W. Sittman, Pres., Burville, La. Further particulars will be found in the advertising columns.

Md., Annapolis.—Bids will be received until noon July 7 for the following 5 per cent. 5-25-year Anne Arundel County school bonds: \$20,000 Curtis Bay \$1000 denomination bonds; \$10,000 Glen Burnie bonds, denomination not less than \$100 nor more than \$1000; \$3000 \$300 denomination rural school bonds; \$10,000 \$500 denomination bonds for school near Linthicum Heights. Samuel Garner is County Supt.

Md., Baltimore.—Bills providing for the issuing of city stock have been introduced in the City Council as follows: For purchase of ground for schoolhouses, \$1,000,000; extension of underground conduits, \$1,000,000; for street improvements in annex, \$2,000,000. J. H. Preston is Mayor.

Md., Easton.—\$50,000 4½ per cent. Talbot County road and bridge bonds have been purchased jointly by J. S. Wilson, Jr., & C. and Strother, Brogden & Co., Baltimore.

Md., Rising Sun.—Election to vote on \$16,000 water, paving and fire apparatus bonds will be held July 1. C. S. Pyle is Pres. Board of Town Commrs.

Md., St. Michaels.—Ordinance has been prepared providing for the issuing of \$8000 6 per cent. \$500 denomination electric light and power plant bonds. Address Town Clerk.

Miss., Batesville.—Election to vote on \$550 sewer bonds will be held July 3. L. B. Lamb is Mayor.

Miss., Cedar Bluff.—\$2000 6 per cent. \$100 denomination municipal school bonds are to be offered July 4. W. R. Bond is Village Clerk.

Miss., Charleston.—Board of Supvrs. Talahatchie County gives notice that it proposes to issue not more than \$50,000 bridge bonds; interest not to exceed 6 per cent., and to mature not later than 40 years from date. D. S. Henderson is Clk.

Miss., Clarksdale.—\$396,000 1-10-year Comhoma County road bonds have been purchased at 101 by the Hibernia Bank & Trust Co. S. F. Carr is Clerk Board of Supvrs.

Miss., Greenwood.—Election is to be held July 21 to vote on \$23,000 5 per cent. 20-year \$500 denomination paving bonds; dated Aug. 1, 1916, and maturing Aug. 1, 1936. Bonds will be offered at private sale. G. L. Ray is Mayor.

Miss., Gulfport.—\$10,000 Advance Consolidated School Dist. and \$9000 Wool Market Consolidated School Dist. Harrison County bonds will probably soon be issued. John J. Murphy is Clk. Bd. of Supvrs.

Miss., Gulfport.—\$115,000 Harrison County courthouse erection bonds will probably be issued. Address Board of Supvrs.

Miss., Houston.—\$33,000 bonds First Supvrs. Dist. and \$7000 Supvrs. Dist. No. 4 Chickasaw County road bonds are to be issued. Address Bd. of Supvrs.

Miss., McComb City.—\$90,000 5 per cent. 20-year sewer bonds have been purchased at par and \$1485 premium by the Kaufman-Smith Emert Investment Co., St. Louis, Mo.

Miss., Oxford.—\$50,000 road bonds Separate Road Dist. No. 4, Lafayette County, are to be issued. Address County Commrs.

Miss., Port Gibson.—Bids will be received until July 3. It is reported, for \$7200 street paving bonds. Address The Mayor.

Miss., Senatobia.—Notice is given that the Board of Supvrs. Tate County propose to issue \$5000 bonds Independence Consolidated School Dist. J. A. Wooten is Clerk of Board.

Miss., Sumrall.—\$20,000 5 per cent. water-works bonds are to be issued. No election is necessary. Address J. I. Brueck, City Clerk.

Miss., Tchula.—Election is to be held June 30 (not June 16 as previously stated) to vote on \$4600 light, \$8000 water works and \$5000 sewer bonds. W. W. Gwin is Mayor and John Obleyer, Clerk.

Mo., Liberty.—\$1,250,000 Clay County road bonds are voted. Address County Commrs.

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Mo., Salisbury.—\$25,000 sewage disposal plant bonds will probably be issued. Address The Mayor.

Mo., Springfield.—Election will probably be called in Greene county to vote on \$50,000 tuberculosis hospital erection bonds. Address County Commrs.

Mo., St. Joseph.—Election will probably soon be called to vote on \$100,000 sewer improvement and extension, \$75,000 street-light plant, \$25,000 fire-department and \$25,000 workhouse bonds. Address The Mayor.

Mo., Van Buren.—\$10,000 bonds Van Buren School Dist., Carter County, have been purchased by the Carter County Bank of Van Buren at 102.61.

N. C., Apex.—Bids will be received until noon July 3 for \$12,000 6 per cent. 25-year \$500 denomination electric-light bonds. J. F. Mills, Chrmn.; Sam Watkins and J. W. Lassiter, Committee of the Board of Town Commrs.

N. C., Asheville.—Special dispatch to the Manufacturers Record says that \$72,000 5 per cent. \$1000 denomination refunding bonds dated July 1, 1916, and maturing 1917 to 1940, have been awarded the Citizens' National Bank of Frostburg, Md., at their bid of 74.80. F. L. Conder is Secy. and Treas.

N. C., Columbia.—Bids will be received until noon July 3 for \$80,000 6 per cent. 20-year \$400 denomination school bonds, dated July 1, 1916. Dr. Jos. L. Spruill is Supt. Public Instruction, Tyrrell County.

N. C., Danbury.—\$2500 6 per cent. 10-year bonds Walnut Cove Special School Tax Dist., Stokes County, are voted. J. G. Morefield is Clerk Board County Commrs.

N. C., Morganton.—Election is to be held in Icard township, Burke County, Aug. 17 to vote on \$50,000 5 per cent. 20-year road bonds; denomination not less than \$100 or more than \$1000. J. B. Holloway is Chrmn. Board Commrs.

N. C., North Wilkesboro.—Reported that 5 per cent. 20-year paving bonds are to be issued. Address Town Commrs.

N. C., Smithfield.—Aug. 15 election is to be held in Boon Hill Township, Johnston County, to vote on \$40,000 road bonds. Address County Commrs.

N. C., Wilson.—\$13,000 4½ per cent. \$1000 denomination Wilson county courthouse improvement refunding bonds have been purchased at \$13.025 by Townsend Scott & Sons, Baltimore.

Okla., Atoka.—\$35,000 school bonds defeated. I. L. Cook is Mayor. (Recently noted.)

Okla., Crowder.—Election is soon to be held to vote on \$30,000 water-works bonds. Address The Mayor.

Okla., Duncan.—Election is to be held in Stephens County, August 1 to vote on highway bonds. Address County Commrs.

Okla., Millburn.—\$9000 electric light bonds defeated. J. T. Gardner is Mayor.

Okla., Newkirk.—Bids will soon be asked for \$125,000 of the \$250,000 6 per cent. \$1000 denomination bonds recently voted for building of public utility gaspipe line. Dated July 1, 1916; maturity 1926 to 1941. Calvin S. Miller is Mayor.

Okla., Ringling.—\$30,000 6 per cent. 25-year \$100 denomination sanitary sewer bonds voted June 15 have been purchased at 1.02 and accrued interest by C. Edgar Honnold, State National Bank, Oklahoma City, Okla.

Okla., Sayre.—Election is to be held in Merritt Township, Beckham county, July 12 to vote on \$10,000 road-improvement bonds. Address County Commrs.

Okla., Tishomingo.—\$12,000 6 per cent. 20-year school bonds have been purchased by E. D. Edwards, Oklahoma City. A. W. Fanning is Supt. Board of Education.

Okla., Woodward.—Election is to be called to vote on \$50,000 city hall bonds. Address The Mayor.

S. C., Columbia.—Election was held June

27 to vote on \$20,000 bonds School Dist. No. 4 (Olympia School Dist.), Richland county. Address Bd. of School Trustees, F. C. Gilmore, Chrmn., and P. M. Mooney, Secy.

S. C., Florence.—\$35,000 4½ per cent. 20-year Florence County jail bonds have been purchased by the Palmetto Bank & Trust Co., Florence, at \$35.150 and accrued interest.

S. C., Greenville.—Bids will be received until noon July 10 for \$50,000 5 per cent. \$1000 denomination Greenville County courthouse bonds; dated July 1, 1915, and maturing July 1, 1955. W. H. Willimon is County Supr., and A. G. Furman, Chrmn. Greenville Court-house Commis.

S. C., Greenville.—Bids will be received until 4 P. M., July 10, for \$50,000 5 per cent. \$1000 denomination bonds School Dist. No. 17, dated July 1, 1916 and maturing July 1, 1936. P. T. Hayne is Chrmn. Bd. of Trustees and B. E. Geer, Secy.

S. C., Hampton.—Bids will be received until 11 A. M. June 30 for \$8000 20-year \$500 denomination bonds Furman School Dist., Hampton county; interest not to exceed 6 per cent. Address Randolph Murdaugh, Atty.-at-Law. Further particulars will be found in the advertising columns.

S. C., Switzer.—Election is soon to be held to vote on \$4000 school bonds. Address Board of Education.

Tenn., Benton.—\$65,000 Polk County pike bonds are voted. Address County Commrs.

Tenn., Brownsville.—Election is to be called to vote on \$25,000 street bonds. N. B. Keathley is Mayor.

Tenn., Ooltewah.—Election is to be held in James County Aug. 5 to vote on \$153,000 road bonds. Address County Commrs.

Tenn., Erwin.—\$100,000 6 per cent. 20-year \$1000 denomination Unicoi county road-improvement bonds have been purchased at \$106.500 by Well, Roth & Co., Cincinnati.

Tenn., Erwin.—Bids will be received until 2 P. M. July 10 for \$12,000 to \$20,000 6 per cent. 20-year street-improvement bonds and for \$15,000 to \$25,000 6 per cent. 1-10-year improvement Dist. bonds. Address O. E. Bogart, Recorder. Further particulars will be found in the advertising columns.

Tenn., Erwin.—\$12,000 6 per cent. 10-30-year \$100 denomination school bonds dated June 1, 1916, have been purchased at \$250 net by John Nuveet & Co., bankers, Chicago.

Tenn., Madisonville.—\$5000 school bonds are to be sold July 8. Address W. H. McCroskey, Mayor. Further particulars will be found in advertising columns.

Tex., Abilene.—\$7500 Hamby School Dist., Taylor County, bonds are voted. Address Board of Trustees.

Tex., Addison.—\$7500 school bonds are voted. A. R. Neldham is Prest. Board of Trustees, Addison Independent School Dist.

Tex., Aransas Pass.—Election is to be held July 8 to vote on \$100,000 5½ per cent. bonds Defined Road Dist. No. 4, San Patricio County. Address Con Brown, Atty., Aransas Pass, or Judge Childress, Sinton, Tex.

Tex., Austin.—The Attorney-General has approved the following securities: \$12,000 5 per cent. 5-40-year electric light plant bonds, Shiner; \$24,000 5 per cent. 10-40-year bonds Van Zandt County Common School Dist. No. 6; \$3500 5 per cent. 10-20-year bonds Strawn Independent School Dist., Palo Pinto County; \$10,000 5 per cent. 20-40-year bonds Caldwell County Road Dist. No. 2. \$85,000 levee bonds Fort Worth Improvement Dist. No. 1, Tarrant County; \$100,000 5 per cent. Greenville sewer bonds; \$28,000 Road Dist. No. 4, \$16,500 Road Dist. No. 2 and \$12,500 Road Dist. No. 3, Red River County bonds; \$2500 5 per cent. 10-20 year bonds Limestone County common school dist No. 77; \$40,000 Wichita Falls street improvement bonds; \$40,000 school and \$10,000 sewer disposal bonds, Paris; \$6000 5 per cent. 10-40-year Chillicothe Independent School Dist. bonds; \$2000 5 per cent. 20-year McLennan County Common School Dist. No. 5 bonds.

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Tex., Beaumont.—Election is to be held July 13 to vote on \$300,000 5 per cent. \$500 and \$1000 denomination school bonds, maturing \$7500 annually each year for 40 years. J. G. Sutton is City Secy.

Tex., Belton.—Election is to be held July 19 to vote on \$6000 bonds to improve bridge and roads in Dennis Mill Dist., Bell county. Address County Commrs.

Tex., Carthage.—\$160,000 6 per cent 1-35-year Panola County warrants, dated May 15, 1916, have been purchased by J. L. Arlitt, Austin, Tex.

Tex., Center.—Bids are being received for \$2000 6 per cent. 20-year \$500 denomination Shelbyville Independent School Dist. bonds. M. P. Ervin is Secy. Bd. of Trustees.

Tex., Corsicana.—\$180,000 Dist. No. 4 (Frost Prec.) and \$100,000 Dist. No. 5 (Dawson Dist.), Navarro County, 5 per cent. 40-year \$1000 denomination road bonds are to be voted on in July. Address R. R. Owen. (Previously noted.)

Tex., Dallas.—\$7500 bonds Madison Independent School Dist., Dallas County, are voted. Address County Commrs.

Tex., Denton.—Election to vote on \$20,000 school bonds will be held July 29. Address Board of Education.

Tex., Ennis.—The \$75,000 Crisp, Bristol and Alsford road dist., Ellis County bonds were defeated.

Tex., Fort Worth.—Election to vote on \$255,000 school-improvement bonds will be held July 22. Address Board of Education. (Previously noted.)

Tex., Fort Worth.—\$85,000 6 per cent 2-28-year levee bonds Fort Worth Improvement Dist. No. 1 Tarrant County, have been sold at \$2000 premium and accrued interest.

Tex., Fort Worth.—G. T. Bludworth, County Supt., Tarrant County, would like to correspond with bond buyers.

Tex., Gonzales.—\$1000 bonds School Dist. No. 20, and \$1500 bonds Common School Dist. No. 38, Gonzales County, are voted. Address County Commrs.

Tex., Hempstead.—\$25,000 bonds Road Dist. No. 1, Waller County, are voted. Address County Commrs.

Tex., Highland Park.—\$10,000 school bonds recently voted have been sold to H. W. Fisher, representing Terry-Briggs & Co., Toledo, O., at par and accrued interest.

Tex., Kingsville.—Election is to be held July 24 to vote on \$150,000 5 per cent. 20-40-year water-works bonds. E. B. Erard is Mayor. (Previously noted.)

Tex., Kingsville.—Special dispatch to the Manufacturers Record says \$150,000 40-year water bonds are voted and that \$100,000 are to be offered now. Address Henry C. Porter.

Tex., Laredo.—Election is to be held July 15 to vote on \$10,000 bonds School Dist. No. 79, Webb. Address Board of Trustees.

Tex., Lipscomb.—\$75,000 5½ per cent. 20-33-year \$500 denomination Lipscomb county road bonds have been purchased at \$77,985 by Terry, Briggs & Co., Toledo, O.

Tex., Lufkin.—Dist. No. 1, Angelina county, has voted road bonds. Address County Commrs.

Tex., Malone.—\$9000 school building bonds are voted. Address Board of Education.

Tex., Mount Pleasant.—\$10,000 Mount Pleasant Independent School Dist. bonds are voted. Address Board of Education.

Tex., Paris.—\$60,000 school bonds are voted. Address Board of Education.

Tex., Richmond.—\$20,000 5 per cent. bonds Sugarland Common School Dist. No. 7 have been purchased by the Blanton-Wise Co., investment bankers, Houston, Tex.

Tex., Rossville.—\$2000 school bonds are voted. Address Board of Education.

Tex., Sherman.—\$50,000 disposal plant, \$50,000 street improvement, \$30,000 water-works, \$10,000 fire alarm department and \$10,000 street bonds are voted. \$10,000 city park bonds defeated. T. U. Cole is Mayor.

Tex., Van Ormy.—\$7000 5 per cent. 30-year \$1000 denomination bonds School Dist. 27, Bexar County, are voted. Date for opening bids not yet decided. Address Judge C. A. Fisher.

Tex., Victoria.—\$75,000 sewer bonds recently voted are 5-40-year 5 per cents. C. A. Wertheimer is City Secy.

Tex., Wichita Falls.—\$80,000 Wichita County bridge bonds are voted. Address County Commrs.

Va., Bedford.—\$75,000 bonds Forest Magisterial Dist., Bedford County, are voted. Address County Commrs.

Va., Brookneal.—\$20,000 6 per cent. 15-30-year \$1000 denomination street-improvement

bonds have been purchased by the First National Bank of Brookneal.

Va., Cedar Bluff.—\$6000 street-improvement bonds are to be issued. Address Town Council.

Va., Harrisonburg.—\$75,000 4½ per cent. 25-year street and other improvement bonds have been purchased by Frederick E. Nottling & Co. and the American National Bank, Richmond, for \$75,012.50 and interest.

Va., Lexington.—\$10,000 Lexington Magisterial Dist., Rockbridge County, road bonds are voted. Henry W. Holt is Judge of the Circuit Court.

Va., Rustburg.—\$200,000 Brookville Magisterial Dist. and \$40,000 Seneca Magisterial Dist., Campbell County 4½ per cent. road bonds have been purchased at \$100.25 by the Peoples' National Bank, of Lynchburg, Va.

Va., Salem.—\$125,000 Salem Magisterial Dist. road bonds recently voted are soon to be offered for sale. W. W. Moffett is County Judge.

W. Va., Charleston.—Bids will be received until 8 P. M., July 11 for \$125,000 4½ per cent. 25-34-year \$1000 denomination Charleston Independent School Dist., Kanawha County bonds. W. O. Daum is Secy. Bd. of Education.

W. Va., Hominy Falls.—\$250,000 Beaver Dist., Nicholas County, road bonds defeated.

W. Va., Huntington.—Bids will be received until 1 P. M. July 20 for the remaining \$300,000 of an authorized issue of \$600,000 5 per cent. 30-year Cabell County road improvement bonds. Address County Court, D. I. Smith, Prest. Further particulars will be found in the advertising columns.

W. Va., Jane Lew.—\$15,000 6 per cent. 10-30-year \$500 denomination street paving bonds have been purchased at par by the Bank of Jane Lew. Geo. B. Waggoner is Recorder.

W. Va., Keyser.—\$200,000 New Creek Dist. and \$75,000 Piedmont Dist., Mineral County, road bonds are voted, interest not to exceed 4½ per cent. Dated Aug. 1, 1916; maturity Dec. 1, 1917, to Dec. 1, 1950. J. V. Bell is Clk. County Court.

W. Va., Lewisburg.—Election is to be held in Blue Sulphur Dist., Greenbrier County, Aug. 5 to vote on \$75,000 highway bonds. Address County Commrs.

W. Va., Lumberport.—\$20,000 6 per cent. \$800 denomination paving bonds, dated June 1, 1916 have been purchased at par by the Union National Bank, Clarksburg, W. Va. L. C. Oyster is Mayor.

W. Va., Martinsburg.—Election called June 6 to vote on \$150,000 street-paving bonds was postponed. Address The Mayor.

W. Va., Parkersburg.—\$100,000 Lubeck Magisterial Dist., Wood County road bonds are voted. C. E. Pahl is Clk. County Commrs.

W. Va., Spencer.—\$240,000 5 per cent. 30-year Roane County road bonds have been purchased at \$600 premium and attorneys fees by Harris, Forbes & Co., New York.

W. Va., West Union.—No sale was made June 20 of the \$175,000 5 per cent. Grant Dist., Doddridge county, road-improvement bonds offered on that date, and new bids are asked until July 17. Dated June 1, 1916; maturity June 1, 1917, to June 1, 1941, inclusive. Denominations, \$1000, \$500 and \$100. Hiram Hutson is Clk. County Court.

W. Va., Wellsburg.—\$80,000 Brooke County road bonds are voted. Geo. C. Wells is County Commr.

W. Va., West-Union.—\$200,000 McClellan Dist., Doddridge County, road bonds defeated.

FINANCIAL NOTES

The South Carolina Bankers' Association held its annual convention June 20 and 21 at Kanuga Club, near Hendersonville, N. C. Officers for the following year were elected thus: Ira B. Dunlap of Rock Hill, Prest.; Charles D. Jones of Lancaster, V.-P.; Julian C. Rogers of Florence, Secy. and Treas.

The Virginia Bankers' Association, in annual convention last week at Old Point Comfort, elected officers for the ensuing year as follows: E. B. Spencer of Roanoke, Prest.; W. Meade Addison of Richmond, V.-P.; W. F. Augustine, of the same city, treasurer; B. Walker Scott of Farmville, Secy., the latter being re-elected.

At the thirteenth annual convention of the North Carolina Building and Loan League at Greenville, N. C., last week, officers for the year were elected as follows: President, E. L. Keesler of Charlotte; vice-presidents, first, W. E. Sharpe of Burlington; second, G. R. Wooten of Hickory; third, J. B. James of Greenville; secretary and treasurer, A. G. Craig of Charlotte.

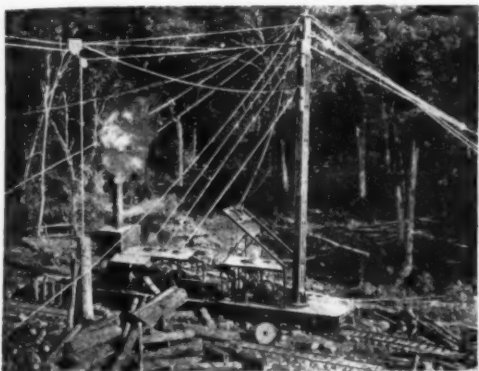
MECHANICAL

Illustrations and descriptions having news value pertaining to developments in machinery, mechanical devices and inventions will be considered for use in this department.

World's Longest Cableway in North Carolina.

In its issue of December 9 last the MANUFACTURERS RECORD published a general description of the extensive activities of the Champion Lumber Co., which owns lumber areas in North Carolina aggregating over 100,000 acres and operates plants at Crestmont and Sunburst.

In connection with the development of the timber properties it is interesting to note that there has been installed what is said to be the longest cableways in the world for bringing the logs from the forest to the mills. Illustrations show portions of both of the cableways, the one at Sunburst having a single span of 3800 feet



PARTIAL VIEW OF 4200-FOOT LOGGING SKIDWAY, CRESTMONT, N. C.

and the one at Crestmont two spans of 900 feet and 3300 feet.

The use of extraordinarily long logging skidways was necessary on account of the rough character of the country which in many places made additional railroad building impossible because of the prohibitive cost. They also have proven much more economical, as they overcome the necessity for relaying the logs by ox and horse teams, ground skidding and overhead cableway skidding to get them to the company's railroad.

The idea of using lengthy cableways was worked out by P. C. Thede, general manager of the Champion Lumber Co., and contract for the construction of the cableways was awarded to the Lidgerwood Manufacturing Co. of New York city.

Each machine is mounted on two steel cars, which, with full equipment, weigh approximately 250,000 pounds. The skidder car carries the boiler and the skidding and reel engines. The boiler is 68 inches diameter by 144 inches high, built for 200 pounds pressure and used under a working pressure of 150 pounds. Mounted on the boiler is a Westinghouse air compressor for operating the airbrakes on the cars. The skidder engine has three drums, the outhaul and the skidding drums for operating the carriage and the load, and the slack pulling drum. The outhaul and the skidding drums have the Lidgerwood interlocking and high-speed device. This device permits the empty carriage to be run out into the woods at a speed of 2400 feet per minute and brings the carriage in with its load at the

rate of 900 feet per minute. The slack pulling drum is the Lidgerwood latest floating friction type. The slack pulling device makes the long span possible, as without this the load line would not overhaul and could not be lowered to the ground when the carriage was any distance out in the woods. This car also carries the reel engine, upon which the 1½-inch main cable is wound and stored when the machine is being moved.

The other car carries the steel head spar and the utility engine. The spar is of steel angle plate and form construction, is 75 feet high, supporting the head end of the main cable and sheaves for operating ropes. The other end of the cable is run out to the tail tree in the woods. The steel spar is mounted on a trunnion, which, in turn, fits into a base free to revolve on the car. This allows the spar to revolve, giving a fair lead to all ropes, no matter in what direction the main cable is run. The spar is lowered on the trunnion as an axle, and when moving the machine it is carried on a car ahead of the spar car. The spar is raised and lowered by means of the utility engine, which is also mounted on the spar car.

The Lidgerwood Manufacturing Co. was conservative in its opinion as to such long spans, being skeptical as to whether logs could profitably be handled over the spans. The results have justified the decision of the Champion Lumber Co. On account of its speed, the machine at Sunburst has logged a distance of 3800 feet in one span at a cost lower than that for logging a distance of 1500 feet with the older type of machine. In this operation the tail tree was 1344 feet above the head tree, greatly increasing the difficulties of the work. At Crestmont the machine had a 4200-foot span, with an intermediate support, enabling it to cross an intervening ridge, and it brought logs in a distance of 3800 feet to the railroad at 50 cents per thousand less than an older type machine working over a 1400-foot span. Though the logging costs are influenced by old type ground and overhead skidders in use at Sunburst and Crestmont, yet the addition of the large skidders have reduced the skidding cost of the entire operation 30 cents per thousand. In addition to this reduction, they are enabled to reach timber with these machines that could not otherwise be logged without considerable railroad building.

Ebonized Coated Culyerts.

It will be of interest to users of corrugated Armeo iron culverts to understand the resistance offered by the Ebonized coating applied to American ingot iron, which is a recent product of the Dixie Culvert & Metal Co., Atlanta, Ga. The Ebonized coating is prepared after formula arranged by authorities on this subject, and after exhaustive researches and tests.

The following shows results of tests made on the Ebonized coating and indicates its deportment as a protective and resistant coating. All of the various well-known coatings applicable are designated by letter (numbers indicate the average of each coating in all corrosive mediums): A, 62; B (Ebonized), 85; C, 48; D, 48; E, 64; F, 69; G, 58; H, 55; I, 59. This comparative test was made by subjecting the different coatings to the following corrosive mediums over a four months' period: Crushed cinder; crushed cinder and 5 per cent. salt, wet daily; crushed cinder and 5 per cent. soda ash; sand and 5 per cent. salt, wet daily; sand and 5 per cent. soda ash, wet daily; 10 per cent. sulphuric acid; 5 per cent. copper sulphate; 10 per cent. lye; 10 per cent. acetic acid.

It will be recognized that the corrosive mediums are

extremely active ones in influence against all material, both on the base metal and on the coating. With these investigations and tests as a basis, the company claims that the protective Ebonized coating, in conjunction with American ingot iron, the base metal, makes for the Ebonized Armeo corrugated culvert all that will insure resistance to rust and corrosion and the effects of acids and alkali.

Flexible Coupling.

The use of Bruce-Macbeth flexible couplings, manufactured by the Bruce-Macbeth Engine Co., Cleveland, O., originally made only for connection with that company's gas engines, but later developed for general installation connecting prime movers to driven members, and for line-shaft connections, is said to afford many advantages.

For electrical installations they permit the engine and generator to be mounted on separate foundations, a feature eliminating the necessity and expense of a common sub-base which in itself means an appreciable saving in installation cost.

The flexibility of the coupling permits the generator armature to float in its true magnetic field, and any slight misalignment between the engine and generator shafts is taken care of. Also, a slight oscillating motion of the armature will be found in line with the shaft, and is very beneficial to commutation.

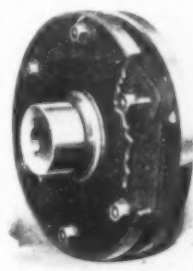
The coupling may be used with either alternating or direct current. In alternating current work, where parallel operation is desired, the value of the flexible type of coupling is claimed to be especially noticeable, one advantage being the uniform torque said to be produced in operation.

Ample provision is said to be made by the coupling for angular variation and allowance for end play. Another claimed advantage is that back lash and wear are entirely eliminated, as a consequence of which there is no power waste.

The unequal wear of bearings as well as excessive friction loss is likewise obviated, and shaft breakage is almost entirely eliminated, the manufacturer states, while no lubricating or other attention is required after the installation is made.

For line shafting work, the use of Bruce-Macbeth flexible couplings is designed to eliminate bending and twisting of shafts, and insure smooth, even running, resulting in a marked saving of power and noiseless operation. They also permit shafting to be connected at an angle.

In addition to the definitely measurable saving of time and money, continual trouble and annoyance are said to be obviated by the use of this coupling, and its installation is said to have rid many factories of these hindrances.



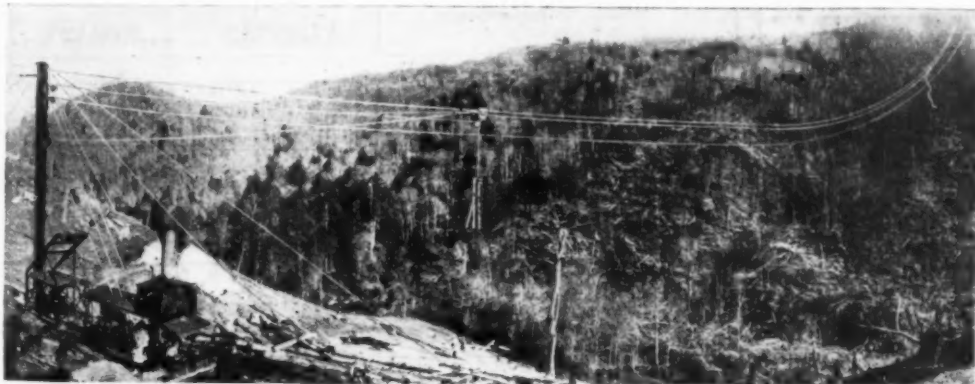
BRUCE-MACBETH FLEXIBLE COUPLING.

\$50,000 Fuller's Earth and Kaolin Plant.

Plans for the Southern Clay Co.'s developments at Horrell Hill and Blaneys, S. C., include the installation of a \$50,000 plant for fuller's earth and kaolin production. The daily output will be from 75 to 100 tons of refined and crude kaolin and from 15 to 25 tons of fuller's earth. Maynard & Simmons of Atlanta are the architects and engineers in charge. The company has its offices at Sumter, S. C., and has organized with a capital stock of \$75,000. A. C. Phelps is president.

Big Timber Development Planned.

The Edward Hines Lumber Co., Chicago, has decided upon the developments of its extensive timber properties in Mississippi, the tracts being estimated to cut 3,000,000,000 feet of lumber. Site will be cleared, wells will be drilled and ponds will be constructed preparatory to erecting the buildings, which will be equipped with machinery for a daily capacity of 400,000 feet of lumber. The plant will be built at Gulfport, Miss. Details are now under consideration.



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INDUSTRIAL NEWS OF INTEREST

Items of news about industrial, railroad or financial interests, building operations, construction work, municipal improvements, or the sale of machinery or the letting of contracts in the South or Southwest, are invited from our readers whether they are advertisers or subscribers or not. We invite information of this character from readers in the North and West about their Southern business operations, as well as from Southern readers. News of value will be published just as readily when from non-advertisers as from advertisers.

York Refrigerating Machinery Installations.

Since the last sales report, issued May 23, the York Manufacturing Co., York, Pa., reports 103 installations of refrigerating equipment have been made in all parts of the country up to June 22. Seventeen out of the 103 installations were in the South, being distributed among fifteen cities representing eight Southern States.

Secures Well-drilling Contracts.

Hughes Specialty Well Drilling Co., 93 Ashley Avenue, Charleston, S. C., has been awarded contracts by the Georgia Railroad to drill a well or wells at Union Point, Ga., and one by the South Carolina Industrial School at Florence, S. C., to drill a well 8 inches in diameter from 100 to 400 feet deep. Work has commenced on both contracts.

Mica Powder for Automobile Tires.

Ground mica is said to be an excellent substance for diminishing friction between the inner tube and casing of automobile tires and to keep the tube and casing from sticking together. Tale and similar materials have been used for this purpose for years, but the Richmond Mica Company, manufacturer of ground mica, Eighth and Main Sts., Richmond, Va., reports the discovery that its product is admirably suited for use as a tire powder because of its lubricating qualities.

Successful Deep Well Pumping.

Installation was made a short while ago by the Sydnor Pump & Well Co., well drillers, water supply contractors, etc., 1310 E. Main St., Richmond, Va., of an 18-inch Luitwieler deep-well working head in combination with a 10 horse-power electric motor direct connected by means of gears. It is delivering 100 gallons of water per minute into a tank at an elevation of 150 feet, including friction, through a delivery line 1500 feet long by 6 inches in diameter, the contractor states. Special attention is called to the fact that the pump is doing the double duty of raising the water to ground level and elevating it to the tank with what is considered by the contractor an exceptionally low horsepower for the work done. The company states that it has made several hundred installations of this pump, manufactured by the Luitwieler Pumping Engine Co., Rochester, N. Y., and that there has not been a single complaint on any of them.

Septic Tank Installations.

Contracts have been completed by the U. S. Sanitary Septic Tank Co., Memphis, Tenn., as follows: Two tanks for the Climax Spinning Co., Belmont, N. C., price \$2338; tank for the Meritas Mills, Columbus, Ga., for \$850; a septic disposal plant for the Hess Steel Corporation's new plant at Baltimore, recently described in the Manufacturers Record. This is an important part of the equipment of the modern plant that is adding to the health and hence efficiency of the employees by lessening the spread of disease.

Opens Washington Office.

For the purpose of further increasing its facilities for handling Southern orders, the Standard Underground Cable Co., of Pittsburgh, in addition to branches located in Atlanta and St. Louis, has opened offices at 704 Wilkens Building, Washington, D. C., in charge of Edward Kerschner, formerly with the Philadelphia branch of the company. The Standard Underground Cable Co. manufactures cables for underground work, as well as a wide range of electric wiring products for mills, factories and buildings generally, power cables, telephone lines, power transmission lines, railway signal work, etc.

Change of Name.

The name of the Graphite Lubricating Co., Bound Brook, N. J., specialists in oilless bearings, has been changed to the Bound Brook Oilless Bearing Co. No change whatever is made in the organization or product, the company considering this change advisable simply because of the many misinterpretations as to the exact nature of its product. Many who were unfamiliar with its bearings were under the impression that

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the company manufactured various graphite greases, lubricants, etc., and were unaware of the fact that the exclusive products are Pound Brook graphite and bronze oilless bearings and Nigrum treated wood oilless bearings.

Full Line of American Pulleys for Baltimore.

A large and well-assorted stock of "American" belt pulleys are now carried in stock by Crook-Kries & Co., 23 Light St., Baltimore, representative of the American Pulley Co., 4300 Wissahickon Ave., Philadelphia, manufacturers of wrought-steel belt and cast pulleys and pressed steel shapes. The success of the American Pulley Co., which has sold nearly 3,000,000 "American" guaranteed pulleys, with sales increasing every year, is an evidence of its ability to serve users through the Baltimore representative, which is now ready to handle the sale of "American" pulleys in the Baltimore market.

Keyless Trunk Lock Marketed.

Information is given by the Keyless Trunk Lock Co., Jacksonville, Fla., that it made its first deliveries of locks about six weeks ago, having sold some of the largest factories in New York, Newark, Philadelphia, Baltimore, Washington, Richmond and Petersburg. The company sells to factories only. The sales department is managed from the Jacksonville office, but shipments are made from both Newark, where the lock is being manufactured, and Jacksonville. The lock is simple in construction, and is claimed to be non-pickable and durable beyond the life of the trunk or suitcase upon which it is put in the face of any amount of rough handling. Manipulation is easy and convenient, being like that to open any safe or locker combination lock, the necessity of a key being obviated.

Uniform Boiler Specifications.

Progress of the work relating to the legal adoption of the A. S. M. E. Boiler Code is reported by the American Uniform Boiler Law Society, Thomas E. Durban, chairman, Erie, Pa., for the following Southern States: Louisiana—Indications seem favorable to the passing of a bill which is to be immediately introduced in the Legislature authorizing the Governor to appoint a committee to draw up rules relative to the construction of steam boilers. Alabama—R. E. Brakeman, who is chairman of the local section of the A. S. M. E. in Birmingham, has the matter of the code constantly before him, and the chief business of the local branch is to make the most intelligent effort possible to have the code adopted in the State. A number of prominent people in the State have been called upon, and it is believed that Mr. Brakeman will be successful. Texas—The Ginnery Association, it is said, will support the code, and the Texas Cottonseed Crushers' Association at the San Antonio meeting recently unanimously approved the code, and it is reported the Governor of Texas has expressed himself as being in favor of legislation for its enforcement. The Dallas News, asserts Mr. Durban, has promised hearty support in an editorial way which will give impetus to the movement in the State. Missouri—In St. Louis the matter of the code, in conjunction with other measures, is before the Council, and assurance is given that the errors in the former bill will be corrected, which errors, however, did not apply to the code, but to other matters, and there is said to be no doubt of the final passage of the code.

TRADE LITERATURE

Powerful Light for Night Work.

Twelve hours of powerful light from a 12-inch reflector at 34 cents per charge is one of the claims made for the Milburn No. 2 Light in a descriptive folder issued by the Alexander Milburn Co., 1420-26 W. Baltimore St., Baltimore. The light uses ordinary lamp carbide to produce the illuminating gas, and it is said to give 3000 candle-power at a cost of 3 cents per hour.

Pressed Steel in Buildings.

Kahn pressed steel construction of the Trussed Concrete Steel Co., Youngstown, O., is shown in various applications in a booklet recently issued. Long practice, skillful engineering and exceptional manufacturing facilities are said to have brought the company's product and service to its present point of popularity. Detail drawings and tables of steel parts are given.

Textile Machinery.

Opening, conveying and distributing machinery used in textile mills to prepare

cotton for cleaning machines are illustrated and described in a booklet issued by the Saco-Lowell Shops, 77 Franklin St., Boston. Among the machines described are bale-breaking feeders; opening, conveying and distributing feed table; condensers; distributors and tie cutters. The Saco-Lowell Shops are represented in the South by Rogers W. Davis, Charlotte, N. C.

Traveling Water Screens.

Water screens, designed primarily to remove refuse and foreign material from water before it enters power plants, steel mills, or wherever water is used in large quantities, are illustrated and described in Folder No. 64 recently issued by the Chain Belt Company of Milwaukee. The screens are built in single units, or in battery formation, the local conditions to determine the number of units, their height and the screen mesh necessary to insure perfect results.

Electric Car Bargains.

Bulletin No. 198 from the Walter A. Zelnicker Supply Co., St. Louis, Mo., gives brief specifications of several used electric rail cars and locomotives. Among them are three 51-foot combination motor cars with passenger, smoking and baggage compartments; two passenger and baggage car bodies without electrical equipment, and two 40-ton electric locomotives, 500-600 volts, direct current, 480 horse-power each. Listed under special car bargains are flat cars, gondolas, box, refrigerator, tank and ballast cars.

Small Loader Concrete Mixers.

New models 15, 17 and 29 of Wonder concrete mixers, manufactured by the Waterloo Cement Machinery Corporation, Waterloo, Ia., are illustrated and described in detail in a late booklet from the manufacturer. A feature emphasized is the side-track loader, said to be unique on a mixer of the small capacity of the Wonder, and permitting the lowest possible charging (at actual ground level or below), while on the other hand allowing high discharge. They are in sizes 5-6, 7-8, 10-11 cubic feet per batch. The second in order, Model 17, is a new size. Wonder pavers and backfillers are also shown.

Welding and Cutting Equipment.

In a circular from the Alexander Milburn Company, Baltimore, on two simple portable outfits, one for welding and the other for cutting metal, special features described are the welding torch with long mixing chamber ahead of the grip, said to effect an unusually complete mixture of the gases, a cutting torch said to be adaptable for the lightest or heaviest work and highly efficient on both, and the positive indicators for use of the machines, claimed to be of the highest quality in insuring correct and steady regulation of gas and eliminating valve and gauge troubles.

Everything in Metals.

Circulars, folders and other literature describing its varied line of metal products have been issued by the Merchant & Evans Co., 2019-2035 Washington Ave., Philadelphia, with Southern offices located at Baltimore, Wheeling and Kansas City. Among the principal products manufactured by the company are "Star" ventilators; Evans "Amet" fire doors and shutters; storm-proof, ornamental and fire-resisting Gothic shingles and metal Spanish tiles; roll tin roofing; corrugated roofing in steel, ingot iron and "Copmet"; flashings; valley and gutter tins; siding, etc., and "Evans" universal joints with permanent and slip fit tings for motor shaft couplings and other shaft connections.

Concrete and Steel in Buildings.

Bulletins 84 and 85 have been issued by the University of Illinois. The former, Tests of Reinforced Concrete Flat Slab Structures, by Arthur N. Talbot and Willis A. Slater, presents the results of tests made on reinforced concrete structures, for getting information on the action of the concrete and reinforcing bars in floor slabs of the flat slab type of construction, effort being made to find the distribution of stress in the bands of reinforcement and the compressive stresses in concrete on the opposite face of the slab. The latter named booklet, by Albert J. Becker, on The Strength and Stiffness of Steel Under Biaxial Loading, is a report of investigation to determine the laws governing the strength and stiffness of mild steel when subjected to combined stress produced by two tensions at right angles to each other, or by a compression combined with a tension at right angles.

Starts New House Organ.

Volume 1, No. 1, of "The Standard," is a new monthly publication issued by The Standard Portland Cement Co. of Birmingham. The object of the monthly is explained in the introductory as follows: "With this first issue of 'The Standard' we are inaugurating a further service to our dealers. Heretofore our advertising has been more or less of a general nature, with the idea of acquainting users of cement with our name and brand and bringing to their attention the important engineering works in which Standard brand Portland cement has been used. This kind of advertising has brought excellent results, and by no means do we intend to discontinue it. But to awaken the interest of prospective cement users we must first interest you dealers who sell cement. In most instances the dealer stocks cement primarily as an accommodation to his customers, and he does not look upon cement as one of his principal lines. The uses of cement are becoming so numerous and the demand so great that it is rapidly becoming an article of prime importance. While nearly everyone knows what cement is and how it may be used for the construction of sidewalks, curbs and gutters, retaining walls and work of like nature, yet many are ignorant of the thousand of other applications which are of equal importance. We look upon our dealers as part of our business family, and this booklet which will come to your desk each month shall be filled with items of benefit to you. But we shall not always 'talk shop.' If we read an article of general interest, we shall pass it along to you in these columns; if we hear a good story, the telling of which may bring a momentary smile to your face, we shall relate it to you. This is going to be our monthly chat with you; we hope you will read it from cover to cover, and if you think we have failed in our purpose to give you something of interest and value, we want you to speak right up in meeting and tell us how we may better serve you. Next Christmas we propose to send you a binder for these booklets so that you may preserve them for reference. We shall try to make the contents worth preservation."

OBITUARY.

Death of Prominent Ohio Manufacturer.

Harley H. Fate, president of The J. D. Fate Company of Plymouth, Ohio, manufacturers of the Plymouth Gasoline Industrial Locomotive and a line of clay-working machinery, died in Cleveland, Ohio, May 27, 1916. Mr. Fate was 42 years old. His death followed a minor operation.

The business of the J. D. Fate Company is being conducted by Harry S. Fate, who has succeeded his brother as head of the temporary organization; George B. Drennan, secretary-treasurer, and H. Ray Sykes, director and acting general manager.

Book Reviews.

Inventors and Money-Makers. By F. W.

Taussig, Ph.D., LL.B., Litt. D., Henry Lee professor of economics in Harvard University. Published by The Macmillan Company, New York. Clothbound. 135 pages. Price \$1.

The psychology of instincts in its relation to economic activities is treated by Professor Taussig in the easy style of the non-partisan scientific investigator, and with the forbearance and kindness well illustrated by the fact that in the consideration of what is often thought of as a purely cold matter, altogether without sentiment, economics, he recognizes the instinct of altruism, or devotion, as a real factor in private corporate operations as well as in the more often recognized form of service in so-called public capacities.

The instinct of contrivance, pre-eminently the possession of the inventor and forming the predominant side of the inventor's instinctive nature, comes in for the fullest treatment. It is dealt with as the ever restive dynamic behind the plans of business organizers and mechanical workers in general. Intermingled with other of the fundamental instincts, it is said to be at the seat of the pleasure taken

by the business manager in seeing his plant ship-shape and efficient and by the craftsman in the neat execution of his work. Examples of the irrelevant and aberrant forms the instinct of contrivance assumes in many instances are given from the lives of such men of science and invention as Cartwright, Watt, Edison.

In the psychology of money-making other instincts receiving attention are that of acquisition or accumulation; of domination; as dependent on the others in its operation, that of emulation; last, of sympathy, altruism or devotion. A comparative analysis of them is sketched and conclusions suggested rather than dogmatically stated. Herein lies one of the book's chief attractions. The bars to the space between the lines have been left down, with the reader's initiative or "instinct of contrivance" left sufficient rein to permit its free exercise. While no Utopian solutions of all the problems associated with the subject are offered, the general trend is one of unexaggerated optimism.

Directory of the Iron and Steel Works of the United States and Canada, 18th Edition. By Howard H. Cook, assistant secretary of the American Iron and Steel Institute, assisted by Wm. G. Gray. 437 pages. Clothbound. Price \$12.

This new and complete revision of the directory, a lineal successor of similar works published in the past, includes, as have previous editions, all companies, firms and individuals engaged in the manufacture of pig-iron, steel, hot-rolled products, charcoal blooms and tinplates and terneplates. So many changes in company organization and plant equipment have taken place since the last edition was issued in 1908 that a complete re-writing has been necessary. Canadian industries have been included in the body of the volume instead of as a separate supplement, as heretofore.

Among the more important additions of information concerning plant equipment are, with regard to blast-furnace plants, a statement of blowing capacity, blowing engines and boilers, slag disposal, sintering and nodulizing plants, etc.; in rolling-mill descriptions a more exact description of heating furnaces and rolling equipment. Former editions gave only the size of the rolling mill. The present work states the type of mill, whether two-high or three-high, the number of stands, sets or housings, and whether roughing or finishing mills.

A system of abbreviations has been adopted in order to present this additional information and keep the size of the book within reasonable limits. For reference where the word in its abbreviated form cannot be readily identified a table of abbreviations has been provided. The method of arrangement of former editions having been found to be cumbersome and unsatisfactory, the companies are treated in this issue in one alphabetical list, while the advantages of the former geographic arrangement have been retained by giving supplementary lists of blast furnaces, steel works, steel casting plants and rolling mills, arranged by States and localities in which the plants are situated. Supplementary lists also give the names of the companies manufacturing certain rolled products, galvanized sheets, tinplate and terneplate, cut wire nails and wrought pipe. Historical connection with the previous editions of the directory has been formed by the insertion in the alphabetic list of companies, of notes describing the changes in plant ownership, changes in corporate title and the dismantlement of plants.

Classified Opportunities

MINERAL AND TIMBER LANDS WATER POWERS MISCELLANEOUS PROPERTIES

HAVE YOU A VALUABLE PROPERTY FOR SALE? Farm, timber land, mineral property or any other? We can help you get in touch with possible purchasers by an advertisement in these columns. For rates see head of this department.

MICA-FELSPAR PROPERTY IN MITCHELL AND YANCEY COUNTIES, N.C.
80 acres in fee simple, developed, sight of C. C. & O. Ry., well timbered; number of openings. Price \$4000.
70 acres on proposed R. R., mica-felspar No. 1 quality; fine water-power; immense face of felspar and lots of mica exposed. Price \$10,000.

We have some excellent coal and timber propositions for sale. Stras & Persinger, Inc., Roanoke, Va.

A FORTUNE awaits the purchasers and developers of mineral and timber properties in the South.

We offer timber tracts, large and small, coal, iron, baryta, manganese, felspar, mica, ochre and pyrites properties; also factories, farms, water-power and water-front properties.

We can arrange the financing of large mining or manufacturing propositions. Correspondence invited. P. A. Green & Company, Room 11, Real Estate Exchange, Richmond, Va.

FOR SALE OR LEASE—A large tract of land containing felspar (3 to 7 per cent. potash), also fuller's earth and kaolin. This land is close to S. A. L. R. R. Address Jas. A. & W. E. Hill, Abbeville, S. C.

ZINC MINE

ZINC MINE, well-developed ore body, on large lease; low royalty; will give good interest for mill. Address W. J. Robinson, Box 717, Joplin, Mo.

COAL AND ORE LANDS

BARGAINS—FOR SALE

10,000 acres Coal Lands in Great Warrior Coal Basin, several miles frontage on Warrior River. These lands carry the celebrated Pratt Seam and other large seams of coal.

I have for sale the largest deposit of Manganese Ore Lands in the whole country, estimated over 3,000,000 tons.

Large tract of high-grade Coal Lands in Eastern and Western Kentucky.

3000 acres Red Ore Land and 1000 acres Self-Fluxing Ore Lands, well located in Birmingham District. T. S. Smith, 1015-16 First National Bank Bldg., Birmingham, Ala.

COAL LAND AND MINE

MINE READY FOR OPERATION—24,000 ACRES GOOD COAL LAND FOR SALE CHEAP TO CLOSE AN ESTATE.—24,000 acres good coal land, with a mine ready to operate, power plant, mining machines, cars, etc.; 14 miles of standard and narrow-gauge railroad, connecting with the Southern Railway at Linn Rock, Ala.; 65 miles westerly from Chattanooga; 4 locomotives, cars; 80 dwellings and large commissary. Much valuable hardwood timber, with 2 good sawmills; most of the land on Cumberland plateau suitable for agriculture when cleared; coal known as Belmont Block, very hard, high in volatile matter, excellent for domestic use. Low freight rates and best of markets. For full particulars, price and terms address F. D. Pierce, Bridgeport, Ala.

COAL LAND

WANTED—A large tract of Pocahontas coal on railway financed, or will sell whole or part. J. H. Hopkins, Box N, Welch, W. Va.

COAL AND TIMBER LANDS

FOR SALE—Coal and timber lands in Southeastern Kentucky near railroads; any sized tracts; also mineral and timber tracts in East Tennessee. Spears Havelly, Hubbard Springs, Va.

TIMBER LAND

TWENTY-NINE HUNDRED acres, in bluegrass section of West Virginia, adjoining county to Virginia; conservatively estimated at from twelve to fifteen million feet of excellent hardwood, white oak, chestnut, chestnut oak and some white pine; a large portion of this tract is level and gently sloping, and considered easily worth \$50 an acre; bluegrass farms almost in sight, \$75 to \$100 an acre, and rarely ever any for sale even at this price. It has several small streams, and a new sawmill outfit, 20,000 feet capacity, on the grounds. An offer of \$50,000 cash has very recently been made for this property. The price is \$65,000 in fee, on very reasonable terms. Six miles to station. S. F. Poindester, Lynchburg, Va.

VALUABLE TIMBER TRACT FOR SALE on large navigable river, near Wilmington, N. C.; 7500 acres in fee, in one tract, fronting four miles on river. Will cut FIFTY MILLION FEET, mostly pine, balance cypress, poplar and gum. Most of timber on four thousand acres with average haul of one mile to the river. Price attractive. Address Charles N. Riker, Real Estate Trust Building, Washington, D. C.

TIMBER LANDS FOR SALE—Located in Western North Carolina; tracts in size from 5000 to 50,000 acres; will cut from 5000 to 10,000 ft. per acre of very fine hardwood; some very attractive tracts of spruce and hemlock from 20,000 to 40,000 acres. For further information write J. L. Martin, Asheville, N. C.

RATES AND CONDITIONS

Rate 20 cents per line per insertion. Minimum space accepted, four lines. In estimating the cost, allow seven words of ordinary length to a line. When the advertisement contains a number of long words, proper allowance should be made. Terms: Invariably cash with order; check, postoffice or express order or stamps accepted. No display type used. Questionable or undesirable advertisements will not be accepted. The assistance of our readers in excluding undesirable advertisements is requested. We reserve the right to refuse any advertisement. No patent medicine, whiskey or mining stock advertisements accepted. Rate for special contracts covering space used as desired within one year as follows: 100 lines, 18c. per line; 300 lines, 16c. per line; 500 lines or more, 15c. per line.

TIMBER LAND

45,000 ACRES TIMBER LAND; 182,000,000 ft. pine, 42,000,000 hardwood; 20% agricultural land; everlasting water; fine grass; \$10 per acre. Other bargains. Philip Moore, Wister, Okla.

HARD AND SOFT WOOD FOR SALE.—Bona-fide purchasers of hard and soft wood, from five to fifty thousand acres, should write to Capt. W. N. Hughes, U. S. Army, 523 1/2 Broadway, Nashville, Tenn.

FOR SALE—25,000 acres round timber; will cut 3000 feet lumber per acre; good land; Manatee Co., Fla.; \$12 per acre in fee; terms. Address P. O. Box 1105, Tampa, Fla.

TURPENTINE AND TIMBER RIGHTS

FOR SALE—Turpentine and timber rights on about 9000 acres of virgin long-leaf yellow pine, situated in Dooley Co., Georgia. For further information address E. D. R., 301 Atlanta National Bank Bldg., Atlanta, Ga.

TIMBER

THIRTY MILLION FEET PINE TIMBER, standing from 60 to 80 feet to a limb, 2 1/2 miles from station, near Columbia, S. C. Price \$70,000. Lafayette Mann, Amelia, Va.

REAL TIMBER BARGAIN—100,000,000 ft. 70 per cent. N. C. pine, poplar and cypress, all original growth, on Southern R. R. in South Carolina. Liberal terms and low price. J. P. Mulherin, Augusta, Ga.

FOR SALE—About four hundred million feet of virgin long-leaf yellow pine, located in Mississippi. For particulars address H. H. Wefel, Jr., Mobile, Ala.

FOR SALE—BY OWNERS—Several tracts hardwood timber, white oak, and chestnut oak, in boundaries from 2,000,000 to 15,000,000 feet, located on Chesapeake & Ohio Railway in Allegheny county, Virginia; also on branch Norfolk & Western Railway in Craig county, Virginia, and Monroe county, West Virginia. Address "Timber," P. O. Box 805, Charleston, W. Va.

FARM AND TIMBER LANDS

4000 ACRES, half timber and half cut-over land, for sale, preferably as a whole or in tracts of not less than 1000 acres each; property adjoins the town of Surrency, Appling county, Ga., on Southern Railway main line; fine stand of both pine and cypress timber; ideal location for stock farm or combination mill and colony farming. Land in vicinity noted for its record production of staple crops. For sale by owner, attractive price and terms, especially if bought as a whole. Wm. Hurd Hillyer, Atlanta, Ga.

WE OWN LARGE TRACTS OF TIMBER LANDS, cut-over lands and colonizing lands. If interested, address H. H. Wefel, Jr., & Co., Mobile, Alabama.

CITY AND SUBURBAN PROPERTIES

THE CITY OF CHARLOTTE, N. C. in spite of wars and rumors of wars, is going steadily on with its building operations and growth.

Over \$150,000 of new homes just being completed or in process of completion. Over \$750,000 of business and public buildings in process. We offer several very attractive investment opportunities in central business locations. Also, several very well located suburban tracts which are capable of large profits with the next few years. Thirty years' real estate experience in New England and in Charlotte at your service in dealing with F. C. Abbott & Company, 1002 Commercial Bank Bldg., Charlotte, N. C.

A VERY VALUABLE ESTATE adjoining the city limits of Miami, Florida, fronting east on oiled boulevard, with every variety of fruit, beautified with royal palms, bearing coconut palms and a large bearing grapefruit grove. This property overlooks Bay Biscayne, is within 10 minutes' ride of the heart of the city and contains an attractive home. This valuable property is being sold to close an estate, and full description, price and terms will be made on application. Phillips & Wainwright, Miami, Florida.

1500 LOTS, \$60; equals \$90,000. Terms. Will sell for \$500 lot, or \$750,000. Fine investment. Stevens Realty Trust Co., Jacksonville, Fla.

DEVELOPMENT PROPOSITION adjoining Richmond, Va. About 100 acres entirely cleared. Level, easily developed at minimum cost. Fine residential district built up and occupied within few hundred yards. Among the best opportunities offered in this rapidly-growing city. Richmond Trust & Savings Co., Real Estate Department, Richmond, Va.

STOCK FARMS

ILL-HEALTH INDUCES THE OWNER TO SACRIFICE AN UP-TO-DATE STOCK FARM.

400 acres, subdivided with 12 miles of wire fencing, improved land. Plenty of running water. Two dwellings, one thoroughly modern. All necessary barns and outbuildings. \$4000 to \$5000 worth of personal property. Thoroughbred horses, cattle, hogs, farming utensils, hay, corn, meat, etc. Twenty miles from the city; eight miles from railroad. Terms most reasonable. A quick purchaser can secure a bargain. J. A. Connelly & Co., Richmond, Virginia.

ALABAMA STOCK FARM; 6065 acres; 75% tillable land; all practically level and fertile; 1 1/2 miles of station on L. & N. Railroad in South Alabama; watered by several small streams; no swamp. Price only \$4.85 per acre. It's estimated to cut 200 feet long-leaf yellow pine per acre, besides some juniper. We now have customer for the timber. Kennedy Realty Co., 923 Jefferson Bank Bldg., Birmingham, Ala.

CATTLE AND HOGS are money-makers; get on ground floor for land to raise them on; Armour in Jacksonville; Moultrie in Ga. Now we have 2100 acres 40 miles, 15,000 acres 30 miles from Jacksonville at \$7.50 per acre. 1000 acres close to Moultrie, Ga., at \$9 per acre. Good timber and plenty of water on all above lands. Inceda Realty Co., Thomasville, Ga.

FAMOUS STOCK FARM FOR SALE—The most famous stock farm in the blue grass region of Middle Tennessee for sale on easy terms. For particulars address Percy Brown, Spring Hill, Tenn.

FARM AND RANCH LANDS

TEXAS.

10,000-acre improved ranch at \$4.25 per acre. 19,200-acre improved ranch at \$4 per acre. 42,000 acres, improved, New Mexico, \$7 acre. 60,000 acres, New Mexico, \$2.50 per acre. 45,000 acres, Texas, improved, \$3.75 per acre. Full and complete description of any of the above tracts upon request. Our information bureau is at your command. Panhandle Land Company, Canadian, Texas.

FRUIT, FARM AND TRUCK LANDS

ALABAMA

ALABAMA STOCK RANGE—10,000 acres twenty miles from Birmingham, accessible by pike and railroads. Abundance of water and natural grasses, including lespedeza. Price for quick sale, \$5 per acre. W. H. Bason, Birmingham, Ala.

FLORIDA

FREE, "THE WINTER GARDEN OF AMERICA" to Fruit Growers, Truckers, General Farmers, Cattle, Hog and Poultry Raisers. Folks interested in the great Indian River Section of Florida write Indian River Farms Company, Suite O, 609 Putnam Bldg., Davenport, Iowa.

FOR A SAFE and permanent investment Florida lands and values should interest you. Manatee County is the best location, and is destined to become one of the most progressive settlements in the State and a very profitable investment. Florida farms in Manatee County are below frost belt; have rich soil, with 355 producing days. Easy terms. J. Henry Strohmeier, Maryland Casualty Tower Building, Baltimore, Md., and Sarasota, Florida.

A FEW HUNDRED ACRES in large and small tracts in Manatee county. Different stages of improvements, suitable for fruit and vegetable growing. My 40 years' experience in the fruit and vegetable business on some of these lands have netted nice profits. F. C. Armstrong, owner, Terra Ceia, Fla.

"FLORIDA FARM FOR SALE." 800-acre farm, 500 acres cleared and in cultivation, balance timbered; deep wells, running stream, rolling hills, good roads, close to railroad; in fact, everything that would make it an ideal farm. If you are interested, write us. Will be glad to show the property. Price \$15 per acre. Gulf Pine Company, owners, Odessa, Fla.

FLORIDA

FOR SALE—Florida farm, 160 acres, fenced; 85 cultivated; 5 acres pecans; about 84 orange and grapefruit trees bearing; few bearing peach and pear trees and grapevines; 300 to 350 cattle, about 150 hogs, 5 horses, 2 wagons, 1 buggy; 7-room house, outhouses, 2 potato-houses, 2 large cribs, 5 stables, 3 wagon shelters, 1 smokehouse, cane mill, boiler, implements, house furniture; shade trees; chickens; present crop of corn, peanuts, sugar cane and sweet potatoes included; fine fishing; splendid hunting, deer, turkeys, quail, squirrels, etc.; short distance from Gulf. An exceptional opportunity. Write us about it. E. Beau & Son Company, Jacksonville, Fla.

GEORGIA

FOR SALE CHEAP—5000 peach trees, 2000 apple trees; just commenced bearing. All in good condition, in fine fruit section. Ill-health cause of selling. Box 173, Gainesville, Ga.

EIGHT HUNDRED ACRES of high land, 4 miles from Savannah; two railroads; half cleared and under cultivation; fully equipped for dairy or stock raising; all fenced; good improvements. Will take part cash and exchange balance for city property. Skellington & White, Savannah, Ga.

FOR SALE—Approximately 30,000 acres cut-over land in Southeast Georgia at \$4.50 per acre. Land lies on both sides main line railroad for a distance of six miles each side. A magnificent cattle and hog propagation. Also a good colonization tract; 65% high land. Please don't answer this unless you mean business. J. M. Cox, Waycross, Ga.

MARYLAND

FOR SALE—Harford county, a number of fine farms of various sizes. Two or three cheap ones, and also two good business stands. H. A. Whitaker, Belair, Md.

NORTH CAROLINA

FOR SALE BY OWNER—Splendid 2366-acre tract of land in Eastern N. C. Ideal for a home, farming or grazing. Price \$10 per acre. Exchange Realty Co., Charlotte, N. C.

FOR SALE—250 acres of mountain land between Brevard and Lake Toxaway, N. C. Splendid for camping, fishing and hunting. Plenty of fruit. Fair houses and outbuildings. An ideal summer place. Southeastern Land Co., Com'l Bank Bldg., Charlotte, N. C.

SOUTH CAROLINA

FOR SALE—2000 acres on tidewater near Charleston; good farming and pasture land; deer plentiful; will make fine preserve; 2,000,000 feet timber; will sell cheap for cash. H. R. Hale, Johns Island, S. C.

TEXAS

FOR SALE—2020-acre ranch in Glasscock County, Texas. 640-acre wheat farm in McCulloch County, Texas. 1-story stone building, 40x50, at Bangs, Brown County, Texas. For description, price and terms address Chas. Neynaber, 221 2nd Street, Galveston, Texas.

VIRGINIA

DAIRY AND STOCK FARM IN VIRGINIA, NEAR TO WASHINGTON, D. C.—700 acres of good land, half cleared and in cultivation, balance in woods; well watered; all necessary dairy buildings and large new barn; good residence in large oak grove, on hill commanding view of entire place and wide sweep of surrounding country; Potomac River in background; good new auto roads into Wash., D. C.; dairy in full operation; offered at half real value for quick sale; owner leaving country. Price \$25,000. Stryker-Schneider Corp., 612 King St., Alexandria, Va.

FOR SALE—For division, good farm of 1250 acres, located in Amherst Co., Va., 3 miles east of the Southern Railway and Sweet Briar College; 12 miles from Lynchburg, Va.; 140 miles from national capital; 200 miles from seacoast. Fine climate; exceptionally well watered for man and beast with creeks, branches and springs; also well timbered. Good brick house, beautiful yard. Has mineral deposits of copper, iron, soapstone, mica and asbestos. Price \$16,500; easy terms. Address E. W. Morriss, Box 621, Hopewell, Va.

1850-acre colonial estate and stock farm on Rappahannock River, Va.; navigable salt water; fishing, oysters, bathing and boating; easy access by water to Northern cities; 1000 acres open land, balance in timber; good buildings; splendid rich man's estate and summer home; healthy climate; splendid drinking water. Price only \$40,000, quick buyer. Green & Redd, Richmond, Va.

VIRGINIA—We have a few old colonial estates left. Some water-front homes with farms attached. Some choice farms at reasonable prices. Address Tabb-Lewis-Cary, Gloucester, Va.

FOR SALE—One of best farms on Tidewater Virginia; owner old man; wants to retire. Address S. C. Adams, Dare, Va.

FOR SALE—100 acres best oyster-planting ground in York River; 20,000 bushels oysters. Ill-health reason for selling. A money-making proposition for parties having money to invest. Address C. J. Tignor, Lackey, Va.

CAPITAL WANTED

WANTED—Capitalists to furnish capital to lay out 20,000 acres of fine farm lands, now in a virgin state, into 20, 40 and 60-acre farms; fence, lay out roads, build farmhouses and barns, and put farms in a good state of cultivation, for which we shall have ready buyers when in this condition. The first mortgages will be given on these farms as developed on a basis of less than 50% of their value and selling price. This is a proposition that is well established and will stand careful investigation, many farms having been already developed. A splendid opportunity for investments. Address No. 138, care Manufacturers Record, Balto., Md.

WANTED—\$35,000, for five years, first mortgage, to build and make improvements in a large boat-building and storage plant; 60 feet of river-front property; must install a machine shop and large ways. Address P. O. Box 453, Miami, Fla.

FINANCIAL

MERCANTILE, Manufacturing and Real Estate Propositions, Hotels, Office Buildings and Apartment Houses Financed. Free Factory Sites. Loans on mortgage and other approved Security. Builders financed. Factories and workmen's homes constructed and financed.

BREARD, SWEARER CO.,
Stock Exchange Bldg.,
210 East German St.,
Baltimore, Md.

SOUTHERN MILL STOCKS
are once more in active demand. If you wish to buy or sell, we can offer you nine years' experience in this field.
F. C. Abbott & Co., 1001-1002 Commercial National Bank Bldg., Charlotte, N. C.

INCORPORATING COMPANIES

CORPORATIONS ORGANIZED under the broad, liberal and substantial laws of Delaware. Minimum original and annual expense. Estimates cheerfully furnished. Write for our revised DIGEST of the law.
CORPORATION COMPANY OF DELAWARE
Equitable Building, Wilmington, Del.

BUSINESS OPPORTUNITIES

BIG MONEY FOR YOU.—Become the magazine man of your community. Everybody reads magazines. We will tell you how to build up a permanent profitable business. No capital required. Others are making big money, why not you?

Send us 50 cents today—now—before you lay this aside. We will immediately send you full instructions showing you how to begin work and enter your name for a year's subscription to Crowley's Magazine, the Journal for Magazine Sellers.

This is your opportunity. We will not alone tell you just what to do, but how to do it, and help you to make good.
The Crowley Brothers, Publishers, 3291 Third Ave., New York, N. Y.

FEED, FERTILIZER AND IMPLEMENT business; mill and elevator; also large warehouse; located in town of 2000 inhabitants; prosperous farming community. On account owner not being able to give personal attention, will offer unusual proposition to prospective buyer. Address No. 2091, care Manufacturers Record, Balto., Md.

SOME ENTERPRISING TOWN, by prompt action, can secure an unusually desirable manufacturing establishment. Unlimited market; used everywhere; liberal profits; inexpensive equipment. Almost any woodworking plant can manufacture the article. Waste wood can be largely used. Enterprising, care Manufacturers Record, Balto., Md.

\$5000 TO \$10,000 to invest in an established growing concern with services by one who has had several years' experience as accountant and office manager. Please give full details in first communication, which will be treated confidentially. Box 52, Clearfield, Pa.

SEED BUSINESS FOR SALE.—Old-established catalog mail-order business is offered for sale; 22 years old; over 200,000 customers in every part of the country; house well known everywhere; principal owner is about to retire and will sell on easy terms to the right people. Address No. 1987, care Manufacturers Record, Balto., Md.

ESTABLISHED electrical contracting and supply business at Miami, Fla., assets around \$13,000; for quick cash sale, \$10,000, stock worth, bought today 25% more. More building in operation than any town South. Owner retiring on account of health, or would consider experienced man with capital as partner and manager. Box 841, Miami, Fla.

WANTED.—To connect with party who will put \$8000 to \$10,000 into manufacturing plant for converting refuse from canning factories into valuable fertilizer material containing 3 to 4% available phosphoric acid, 10 to 11% ammonia, 3 to 1% potash; material worth \$40 ton; produce it for \$12 ton. Can guarantee 25% on investment. Address No. 1939, care Manufacturers Record.

BUSINESS OPPORTUNITIES

WILL PURCHASE desirable electric-light or gas property having established earnings, or finance consolidation of a group of such properties. Advise concerning present annual gross earnings and franchise conditions. Treasurer, P. O. Box 1136, Providence, R. I.

FOR SALE OR EXCHANGE.—Will sell or exchange modern downtown business property; well rented; in a section that is rapidly increasing in value; price \$50,000; trust \$25,000. New York Real Estate Brokers, 1423 F St., Washington, D. C.

WOULD INVEST along with a position in bank or trust company or similar business. Experienced. Address Box 131, Pocollet, S. C.

WANTED—A partner in business; small capital required; can make lots of money. C. L. Britton, 223 S. Madison, Tulsa, Okla.

HOTEL FOR SALE

FOR SALE—Hotel General Forrest, Rome, Ga., new and fireproof; strictly modern; cost \$150,000. Will sell for \$125,000. Write A. M. Walkup Company, Inc., contractors, Richmond, Va.

BUILDINGS—STEEL PORTABLE

"PRUDENTIAL" STEEL BUILDINGS for all purposes; portable, one-story construction; workshops, toolhouses, storage, garages, bunkhouses, etc. Write for Catalog A. C. D. Pruden Company, Baltimore, Md.

COLLEGES AND SCHOOLS

RENSSELAER POLYTECHNIC INSTITUTE, TROY, N. Y.—Courses in Civil, Mechanical, Electrical and Chemical Engineering and General Science, leading to the degree of Civil Engineer (C.E.), Mechanical Engineer (M.E.), Electrical Engineer (E.E.), Chemical Engineer (Ch.E.), and Bachelor of Science (B.S.). Also special courses. Splendidly equipped new engineering laboratories. Send for catalogue to Registrar.

PATENT ATTORNEYS

EUGENE C. BROWN, ENGINEER AND PATENT LAWYER, Suite 40 Victor Bldg., Washington, D. C. Graduate Engineer, Lehigh University. Member Bar U. S. Supreme Court. Patents and Trade-Marks. Inventions considered from an engineering standpoint to determine their breadth in covering equivalent construction and extent of monopoly, and from a legal standpoint in framing adequate claims to protect such monopoly against infringement. Over 20 years devoted exclusively to patent matters; over 9 years Examiner in U. S. Patent Office. Patents secured; infringement suits conducted in all courts; reports upon validity, scope and infringement of patents; send sketch and description of invention.

PATENT YOUR IDEAS.—\$3000 offered for certain inventions; book, "How to Obtain a Patent" and "What to Invent," sent free upon request; send rough sketch for free report as to patentability. We advertise your patent for sale at our expense. Chandler & Chandler, patent attorneys, 978 F St., Washington, D. C.

NORMAN T. WHITAKER, Attorney-at-Law and Mechanical Engineer. Former Assistant Examiner of Patents and Trade-Marks, U. S. Patent Office. 22 Legal Building (opposite Patent Office), Washington, D. C.

PATENTS THAT PROTECT AND PAY. Advice and books free. Highest references. Best results. Promptness assured. Trade-marks registered.

Watson E. Coleman, Patent Lawyer, 624 F St., Washington, D. C.

PATENTS.—Write for how to obtain a patent, list of patent buyers, and inventions wanted. \$1,000,000 in prizes offered for inventions. Send sketch for free opinion as to patentability. Our four books sent free upon request. Patents advertised free. We assist investors to sell their inventions. Victor J. Evans Co., Patent Attys., 712 Ninth St., Washington, D. C.

LOCATION WANTED

ANY TOWN desirous of securing an industry that can be started with very small outlay of money and built up to large proportions in a comparatively short time, please communicate with the undersigned, and particulars will be furnished. The article is one of everyday use on every house and building, and is without question superior to anything of the nature on the market. Very liberal arrangements will be made to manufacture on a royalty basis. Unlimited market, good profits, simple and easy to make. Almost any woodworking plant could be utilized. Address Industry, care Manufacturers Record, Balto., Md.

MANUFACTURING LOCATION WANTED.—Any small town desirous of securing an industry working about one hundred people to start with, which will grow to very large proportions in a short time, manufacturing "textile line" with no competition whatever, and a demand for products made that is universal and unlimited the entire year, including large profits to the manufacturer, and which plant location can be had on favorable terms, should communicate with the undersigned, and particulars will be furnished immediately. Address Lock Box No. 11, McConnellsburg, Pennsylvania.

INDUSTRIES WANTED

CLAYWORKING PLANTS

WANTED—A clayworking plant; abundance high-grade shale, suitable for brick, tile, silt block, segment tile, etc.; natural gas at 3 cents; fire clay available; good transportation facilities. We invite your investigation. Inquiries given prompt attention. Address Chas. W. Collins, Secy. Chamber of Commerce, Van Buren, Arkansas.

MISCELLANEOUS

WANTED—In Chapel Hill, North Carolina, a resort hotel, laundry, bakery and ice plant. Beautiful climate. Site of State University, over one thousand students. Address Board of Trade, Chapel Hill, N. C.

MADISONVILLE, TENN., L. & N. R. R. Knoxville, to Atlanta, offers to all manufacturers free sites, preferably textile or wood-working plants; electric power at lowest rate, low taxes, adequate labor supply with low living cost. Address Board of Trade, R. W. Wright, Secy.

COLON, N. C., located at the junction of the main lines of the Seaboard Air Line and Norfolk & Southern, 43 miles west of Raleigh with the Blewitt Falls lines of the Southern Power Co., offers superior inducements to manufacturers and capitalists. Write John M. Hammer, Greensboro, N. C.

SISTERSVILLE, W. VA. (47 and 114 miles from Wheeling and Pittsburgh, respectively), on the B. & O. R. R. and Ohio River, in a region of untouched natural resources, offers to all manufacturers: Free sites in an unflooded district up to 30 acres; \$1.10 coal; 5¢ natural gas; electric power at 1/2¢ per K. W. H.; low taxes; adequate labor supply combined with low living cost. Sistersville is the richest city in the United States per capita. Write Chamber of Commerce.

FACTORY SITES

BALTIMORE FACTORY AND TERMINAL SITES.—Statement of Asa G. Candier, President The Coca-Cola Co.: "Investigation convinced us that Baltimore is not only the commercial metropolis for Southern trade, but that it affords shipping opportunities both by water and rail for domestic and foreign traffic superior to any of the great cities in any section of the United States." Locate in Baltimore and derive these advantages. We can provide accommodations to meet your requirements.

"OUR MOTTO":
FACTORY AND TERMINAL SITES
IN BALTIMORE.
Wm. Martien & Co.,
3 N. Calvert St., Baltimore, Md.

RICHMOND MANUFACTURING SITES
AT FARM LAND PRICES.
490 acres, partly in the city. Mile and a quarter river frontage (navigable). Two railroads. Fertile farm or dairying land. Can be had at less than one-third the price of adjoining acreage. J. A. Connelly & Co., Richmond, Virginia.

INDUSTRIAL PLANTS FOR SALE

FOUNDRY

FOUNDRY FOR SALE.—Entire plant or controlling interest; exceptional opportunity; small investment necessary; railroad facilities; electric drive and cheap rates; low freight rates on coal and iron. Address No. 2002, care Manufacturers Record, Balto., Md.

FOUNDRY AND MACHINE SHOP

MACHINE SHOP AND FOUNDRY PLANT FOR SALE.—Now in operation in a bustling city of 9000 population; four railroads; private tracks into yard from three of them; well equipped with lathes, planers, shapers, drill presses, steam hammers, air hammers, air compressor, riveters, drills, etc.; 10,000-lb. traveling crane. Address Harris & Ballenger, Real Estate Agents, Cordele, Ga.

HANDLE MANUFACTURING PLANTS

FOR SALE—Two complete handle manufacturing plants, located at Stuttgart and Almyra, Arkansas; 6 lines of railroads out of this place and abundance of hickory timber. Best location for plant in the South. Established business of 23 years' standing. Write National Handle Co., Stuttgart, Ark.

BOX FACTORY AND SAWMILL

FOR SALE—Box factory and sawmill. Plant in operation, with good trade and well located. Bargain for practical box man. Write Alabama Box & Lumber Company, Montgomery, Ala.

MILL BUILDING

MILL BUILDING FOR SALE.—Standard construction mill building for sale, 108'x75', with engine and boiler room. Also, 15 tenement-houses. Located on two railroads at Jonesboro, N. C. Can be purchased with or without steam plant. Electric power available. Building is standard in every respect and in good condition. Can be purchased at low price and on good terms. Address No. 1967, care Manufacturers Record, Balto., Md.

PLANING MILL

FOR SALE.—We can sell at a bargain and on favorable terms planing mill in this place, 20,000 people; has trackage; on paved street; desirable location. Cotton Belt Savings & Trust Co., Pine Bluff, Arkansas.

BAND MILL PLANT

BAND-MILL PLANT with 50,000,000 feet pine timber in Eastern N. C.; rail and water shipments. Address Band Mill, Box 167, Burgaw, N. C.

MEN WANTED

DISTRICT MANAGERS WANTED: high-grade, easy selling, standard article; \$300 for merchandise necessary. U. S. Mfg. Co., 7th and Market streets, St. Louis, Mo.

IF ACTUALLY QUALIFIED for executive, manufacturing, technical or administrative position carrying salary between \$2500 and \$15,000, communicate with undersigned counsel, who will negotiate strictly confidential preliminaries for such positions. Not an employment agency; undersigned acts in direct confidential capacity. Send name and address only for preliminary details. R. W. Bixby, E. 1 Niagara Square, Buffalo, N. Y.

FACTORY REPRESENTATIVES wanted to sell direct from factory on strictly commission basis our line of "Indestructible Drilled in Letter" signs for streets, roads, railroads, traction lines, factories and advertising, or any purpose where an out-door sign is needed. Can be sold as a side line by men calling on State, county, city and township officials. Can be sold in connection with sale of advertising novelties, road machinery, hose, etc., etc. Does not conflict with the enamel or any sign line. Samples and photographs supplied. The Indestructible Sign Co., Box 773, Columbus, O.

SITUATIONS WANTED

FIRST-CLASS metal miner; technical graduate; 30 years age; experience in Western mines; desires position as Supt. or manager. Address No. 1977, care Manufacturers Record.

CAPABLE EXECUTIVE, experienced in reorganization work, will soon be open for reorganization; manufacturing or wholesale. Investigate. Address No. 2003, care Manufacturers Record, Baltimore, Md.

AGENCIES WANTED

ESTABLISHED Canadian selling firm of high financial standing wishes to represent manufacturers of high-class products and newly patented articles for Eastern Canada.

Have suitable store and sample-rooms, handsomely furnished and well located in Montreal city.
Will consider any exclusive representation of serious proposition. Address B. Beaulieu, 128 St. Denis St., Montreal, Canada.

GUMMED LABELS

I NEATLY PRINT 1000 gummed labels, size 2 1/4"x3 1/4", \$1.25 cash. Prepaid anywhere in U. S. A. K. Spilman, Maywood, Illinois. Reference, Provost State Bank.

LETTERHEADS, PRINTING, ETC.

\$1.50	\$1.50	\$1.50
FOR 1000 LETTERHEADS (Bond paper); 5000, \$6.00. Billheads, Envelopes, Cards, Statements or Tags, same price. Samples of these and better grades mailed on request. Parcel post orders intelligently handled.		
A. W. Beveridge & Co., Printers, 111 Mercer St., Baltimore, Md.		

MACHINERY AND SUPPLIES

GRANULATED CORK

FOR SALE—50 tons pure granulated cork, cheap. Apply New Orleans Cold Storage & Warehouse Co., Ltd., New Orleans, La.

CORLISS ENGINE

16"x42 LEFT-HAND ALLIS CORLISS ENGINE, in first-class condition and a bargain for quick sale. Write Home Oil Mill, New Decatur, Ala.

LIGHTING OUTFIT

FOR SALE—One electric-lighting outfit; 4 K. W. dynamo, 6 H. P. Stover engine; also one gas-lighting machine, Climax, made by Kemp Mfg. Co. All in good shape; used very little. Parish & Simpson, Smithfield, Va.

KEROSENE ENGINES

FOR SALE—One 20 H. P. and one 25 H. P. "Ingeco" throttling governor kerosene engine. For further particulars address Lyman R. Brothers Company, Inc., Suffolk, Va.

SECOND-HAND BANK FIXTURES

SECOND-HAND BANK FIXTURES, formerly used in the following banks: Commercial Savings Bank, Greenville, Miss., quartered oak, bronze grilles and cage; Bank of Greenwood, S. C., mahogany top screen, marble counters and grilles; Citizens' Bank, Albany, Ga., birch-mahogany top screen, marble counter and steel grilles; First National Bank, Anliston, cherry wood panels, bronze grilles and movable furniture; Georgia State Savings Association, Savannah, heavy bronze top screen, birch-mahogany, marble counters and bronze-plated grilles; National Bank of Savannah, Ga., cast-iron enamel top screen, Tennessee marble counter and metal furniture; Trust Company, Arcadia, Fla., genuine cast-bronze top screen, English vein marble counters, mahogany furniture. Also numerous others. Address Geo. W. Muller Bank Fixture Company, Atlanta, Ga.

PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS

Bids close July 14, 1916.

PROPOSALS FOR MARBLE FOR LABORATORY. Hardware for Marblework, Steel Angles and Plates, Soft-Steel Bars, Rock-Cutter Heads and Blades, Sheet Brass, Machine Bolts, Rivets, Nails, Screws, Staples, Screw Eyes, Brass Nuts, Door Bolts, Hinges, Hasps, Wardrobe Locks, Screen-Door Catches, Furniture Casters, File Handles, Shelf Brackets, Storage-Battery Warehouse Trucks, Hydraulic Valve, Cocks, Oil Spouts, Pulleys, Chain Blocks, Snatch Blocks, Coal Baskets, Buckets, Corn Brooms, Floor Brushes, Flue Brushes, Scythestones, Lantern Globes, Lamp Chimneys, Graduating Glasses, Tables, Chairs, Rat Traps, Mattress Hair, Twine, and Basswood Lumber. Sealed proposals will be received at the office of the General Purchasing Officer, The Panama Canal, Washington, D. C., until 10:30 A. M. July 14, 1916, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and general information relating to this Circular (No. 1056) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State Street, New York City; 614 Whitney-Central Building, New Orleans, La., and Fort Mason, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Md.; Philadelphia, Pa.; Pittsburgh, Pa.; Boston, Mass.; Buffalo, N. Y.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Milwaukee, Wis.; St. Paul, Minn.; Chattanooga, Tenn.; Louisville, Ky.; Mobile, Ala., and Galveston, Tex.; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. EARL I. BROWN, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

Bids close August 23, 1916.

PROPOSALS FOR THE PURCHASE OF Locomotives offered for sale by The Panama Canal, and which are no longer needed. Sealed proposals will be received at the office of the General Purchasing Officer, The Panama Canal, Washington, D. C., until 10:30 A. M. August 23, 1916, at which time they will be opened in public, for purchasing the above-mentioned locomotives. Blanks and general information relating to this Circular (No. 1057) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State St., New York City; 614 Whitney-Central Building, New Orleans, La., and Fort Mason, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Md.; Philadelphia, Pa.; Pittsburgh, Pa.; Boston, Mass.; Buffalo, N. Y.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Milwaukee, Wis.; St. Paul, Minn.; Chattanooga, Tenn.; Louisville, Ky.; Mobile, Ala., and Galveston, Tex.; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. EARL I. BROWN, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

Bids close July 20, 1916.

PROPOSALS FOR POWER PLANTS FOR Supply Boats, Motor Boats, Pump Casing and Heads, Pipe Threading and Cutting Machine, Babcock Metal, Sheet Brass, Copper Wire, Bolts, Rivets, Nuts, Washers, Joining Shackles, Augers, Tool Holders, Dust Valves, Paint Brushes, Roof Brushes, Angle Brushes, Belt Lacing, Storage Batteries, Hose, Packing, Rubber Valves, Canvas Belling, Canvas, Burlap, Linoleum, Magnesia Pipe Covering, Emery Cloth, Sandpaper, Chamols Skins, Grated Cork, Sponges, Buckskin Gloves, Vegetable Dishes, Window Glass, Bond Paper, Carbon Paper, Soap, Paraffin Wax, Lye, Calcium Carbide, Potassium Chlorate, Sulphate of Copper, and Loaded Zinc. Sealed proposals will be received at the office of the General Purchasing Officer, The Panama Canal, Washington, D. C., until 10:30 A. M. July 20, 1916, at which time they will be opened in public, for furnishing the above-mentioned articles. Blanks and general information relating to this Circular (No. 1058) may be obtained from this office or the offices of the Assistant Purchasing Agents, 24 State St., New York City; 614 Whitney-Central Building, New Orleans, La., and Fort Mason, San Francisco, Cal.; also from the U. S. Engineer Offices in the following cities: Seattle, Wash.; Los Angeles, Cal.; Baltimore, Md.; Philadelphia, Pa.; Pittsburgh, Pa.; Boston, Mass.; Buffalo, N. Y.; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Ill.; St. Louis, Mo.; Detroit, Mich.; Milwaukee, Wis.; St. Paul, Minn.; Chattanooga, Tenn.; Louisville, Ky.; Mobile, Ala., and Galveston, Tex.; Commercial Club, Kansas City, Mo.; Chamber of Commerce, Quincy, Ill., and Commercial Club, Tacoma, Wash. EARL I. BROWN, Major, Corps of Engineers, U. S. A., General Purchasing Officer.

Bids Close August 2, 1916.

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C. June 20, 1916. Sealed proposals will be opened in this office at 3 P. M. August 2, 1916, for the remodeling of the United States custom-house at New Orleans, La. Drawings and specifications may be obtained from the superintendent of construction of the custom-house, New Orleans, La., or at this office, in the discretion of the Supervising Architect, JAS. A. WETMORE, Acting Supervising Architect.

Bids Close July 11, 1916.

U. S. ENGINEER OFFICE, Baltimore, Md. Sealed proposals for dredging in Susquehanna River, Md., will be received here until 1 P. M. July 11, 1916, and then opened. Information on application.

PROPOSAL ADVERTISING INFORMATION

RATE: 20 cents per line per insertion.

PUBLICATION DAY: Thursday.

FORMS CLOSE 9 A. M. Wednesday. Copy received later cannot be published until issue of following week.

NIGHT LETTER: When too late to send copy by mail to reach us by 9 A. M. Wednesday, forward by night letter.

THE DAILY BULLETIN OF THE MANUFACTURERS RECORD:

Published every business day; gives information about the industrial, commercial and financial activities of the South and Southwest.

The Daily Bulletin can be used to advantage when copy cannot reach us in time for publication in the Manufacturers Record before bids are to be opened, or when daily publications are necessary to meet legal requirements.

The same rate applies—20 cents per line per insertion.

Bids Close July 10, 1916.

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C. June 12, 1916. Sealed proposals will be received in this office until 3 P. M. July 10, 1916, and then opened, for Boat Basin at the U. S. Quarantine Station, Galveston, Texas, in accordance with drawing No. 16-A and the specification, copies of which may be had upon application to the Custodian of the U. S. Quarantine Station, Galveston, Texas, or at this office. JAS. A. WETMORE, Acting Supervising Architect.

Bids Close August 2, 1916.

TREASURY DEPARTMENT, Supervising Architect's Office, Washington, D. C. June 20, 1916. Sealed proposals will be opened in this office at 3 P. M. August 2, 1916, for the construction complete (including equipment) of three interior safety vaults, of reinforced concrete, in the United States custom-house, New Orleans, La. Drawings and specifications may be obtained from the superintendent of construction at the custom-house, New Orleans, La., or at this office, in the discretion of the Supervising Architect, JAS. A. WETMORE, Acting Supervising Architect.

Bids Close June 30, 1916.

U. S. ENGINEER OFFICE, Baltimore, Md. Sealed proposals for dredging in Elk and Little Elk Rivers, Md., will be received here until 1 P. M. June 30, 1916, and then opened. Information on application.

Bids close July 8, 1916.

\$5000 School Bonds

Sale of school bonds, Town of Madisonville, Tennessee; \$5000 to be sold July 8, 1916. For further information write W. H. McCROSKEY, Mayor, Madisonville, Tenn.

Bids Close July 5, 1916.

\$65,000 Good Road District Bonds

Will sell \$65,000 Corinth-to-the-Gulf Road District bonds July 5, 1916, at 2:30 P. M.; interest not to exceed 6 per cent. semi-annually. Address O. M. HINTON, Corinth, Alcorn County, Miss., Clerk of Board of Supervisors.

Bids close July 10, 1916.

6% Bonds For Sale

Erwin, Tennessee, June 19, 1916. Sealed bids will be received by the Town of Erwin, Tennessee, until 2 P. M. July 10, 1916, for \$12,000 to \$20,000 20-year Street Improvement 6 per cent. Bonds and for \$15,000 to \$25,000 one to ten-year 6 per cent. Improvement District Bonds. A certified check for 10 per cent. of bid will be required of the bidder, and the right is reserved to reject any and all bids. For further information call on or write O. E. BOGART, Recorder.

Bids Close July 3, 1916.

\$30,000 Road Bonds

Warrenton, N. C. Sealed bids will be received by Board County Commissioners of Warren County, N. C., at the Courthouse in Warrenton, N. C., until Monday, July 3, 12 o'clock M., 1916, for the purchase of thirty thousand dollars' worth of River Township road bonds. Bonds to run 35 years, at 5 per cent. interest, payable semi-annually at Treasury office in Warrenton, N. C. Bids must be accompanied by certified check for \$200 as evidence of good faith. The right is reserved to reject any or all bids. For further information address P. M. STALLINGS, Chrmn., Or S. G. DANIELS, Atty., Littleton, N. C.

Bids Close July 3, 1916.

\$15,000 6% Bonds

Fifteen thousand Littleton School District Bonds, twenty-year, six per cent. Bids opened July 3d, 12 M. Certified check \$500. HOWARD F. JONES, Secy., Warrenton, N. C.

Bids close July 20, 1916.

\$200,000 5% Bonds

The County Court of Cabell County, West Virginia, offers the remaining \$200,000 of the authorized issue of \$600,000 30-year 5 per cent. road improvement bonds, authorized by special election held May 29, 1915, for sale to the highest and best bidder at public sale on July 20, 1916, at 1 o'clock P. M. at the County Court room, at the Court House of Cabell County, at Huntington, West Virginia, and that all persons desiring to bid on said bonds shall file their sealed bids, in writing, with the Clerk of the County Court of Cabell County on or before said date and time, and file with their said bid a certified check for \$500 as a guarantee of good faith, and that said bonds be sold to the highest and best bidder.

The Court reserves the right to reject any and all bids.
COUNTY COURT OF CABELL COUNTY, WEST VIRGINIA.
By D. I. SMITH, President.

Huntington, W. Va., June 19, 1916.

Bids Close July 8, 1916.

\$153,500 5% Bonds \$90,000 5% Bonds

Lewisburg, W. Va. Notice is hereby given that until 1 P. M. on the 8th of July, 1916, the County Court of Greenbrier County will receive sealed proposals for the entire issue of \$153,500 road-improvement bonds, Lewisburg District, and \$90,000 road-improvement bonds, White Sulphur District, said bonds issued under approved orders in other districts of West Virginia.

Said Lewisburg District bonds to be in the amount of \$153,500, dated June 1, 1916, in the denominations of \$1000, \$500 and \$100 each, to bear interest at the rate of 5 per cent., payable semi-annually, with coupons attached, at the office of the Clerk of this Court in the Town of Lewisburg, Greenbrier county, West Virginia, or at the Chase National Bank in the City of New York, in the State of New York, at the option of the holder, one-twentieth part of the principal of said bonds due and payable on the first day of June in each year until the entire issue is retired.

Said White Sulphur District to be in the amount of \$90,000, dated June 1, 1916, in the denomination of \$1000, \$500 and \$100 each, to bear interest at the rate of 5 per cent., payable semi-annually, with coupons attached, at the office of the Clerk of this Court in the Town of Lewisburg, Greenbrier county, West Virginia, or at the Chase National Bank in the City of New York, in the State of New York, at the option of the holder, one-twentieth part of the principal of said bonds due and payable on the first day of June in each year until entire issue is retired.

All bids shall be sealed and endorsed separately "Bid for Permanent Road Improvement Bonds, Lewisburg District, Greenbrier County," and "Bids for Permanent Road Bonds, White Sulphur District, Greenbrier County," and there shall be included therein a certified check in amount of two per cent. of the amount bid, said certified check to be payable to the Sheriff of Greenbrier County, which sum of money, in case the bid be accepted and the bidders fail to take said bonds and pay for same, shall be forfeited to the said County Court.

All bids to be net to the county, clear of attorneys' fees and expenses. While the bonds in both Lewisburg District and White Sulphur District bear date of June 1, 1916, they are to only draw interest from date delivered to purchaser. The Court reserves the right to reject any and all bids.

Information concerning said bonds may be had of the undersigned.
JNO. S. CRAWFORD,
Clerk of the County Court of Greenbrier County, West Virginia.

Bids close July 25, 1916.

\$20,000 4½% Bonds

Rockville, Md. The County Commissioners of Montgomery County will receive sealed bids for the purchase of forty Montgomery County bonds of five hundred dollars each, up to twelve o'clock M. on the 25th day of July, A. D. 1916, at which time the same will be opened by said County Commissioners and the sale consummated to the highest bidder for cash. If in the opinion of the said County Commissioners such highest bid being an adequate price for said bonds.

These bonds are in a series of forty bonds of five hundred dollars each, aggregating twenty thousand dollars, and numbered from one to forty, both inclusive; one of said bonds, being bond number one, being payable one year after date thereof, and one of said bonds in order of their number being payable in each year thereafter until the entire issue of forty is fully paid.

These bonds are coupon bonds and bear interest at the rate of four and a half per centum per annum, interest being payable semi-annually on the first days of February and August in each year until the payment of the principal sum.

The principal sum and interest being payable at the Montgomery County National Bank of Rockville, at Rockville, Maryland.

Each bid must be accompanied with a certified check for two hundred dollars, made payable to said County Commissioners, or by cash in the sum of two hundred dollars to be paid to said County Commissioners.

By order of the Board of County Commissioners of Montgomery County, Maryland.
JOHN R. LEWIS,

President of the Board of County Commissioners of Montgomery County, Maryland.
BERRY E. CLARK,
Clerk to the County Commissioners of Montgomery County.

\$425,000.00 5% Bonds

Donna, Tex. Donna Irrigation District, Hidalgo County, Texas, offers Four Hundred Twenty-five Thousand and No/100 (\$425,000.00) Dollars' worth of First Lien, Tax-Free, 5 per cent. Irrigation District Bonds for sale for cash. Bonds secured by a First Lien on Forty-two Thousand (42,000) acres of richest, best situated land in the wonderful Rio Grande Valley; security five to ten times the bond issue; superior to mortgages as a lien; validity assured under a law of the State of Texas, and issue confirmed by a due court decree. Issue in denominations of \$500 and \$1000, serially, maturing in from five to forty years.

For further particulars write Donna Irrigation District, Hidalgo County, Texas, or James B. Wells, Attorney-at-Law, Brownsville, Texas.

Bids Close July 8, 1916.

\$175,000 5% Bonds

SALE OF MONROE COUNTY, TENNESSEE, ROAD IMPROVEMENT BONDS.

Madisonville, Tenn. Notice is hereby given that on Saturday, July 8, 1916, at the Court House door in Madisonville, Tennessee, there will be offered for sale for cash in hand the following bonds, to wit:

\$175,000 Monroe County Road Improvement Bonds, bearing interest at the rate of 5 per cent., interest payable semi-annually on the 8th day of July and the 8th day of January of each year, and the place of payment of interest and principal will be arranged to suit the convenience of the purchaser. Said bonds will mature as follows:

\$58,000 July 8, 1941.
\$58,000 July 8, 1946.
\$59,000 July 8, 1951.

Sealed bids will be received and opened on said July 8, 1916, and if not satisfactory the officers directing the sale of said bonds will place same up for sale at public auction, where they may be sold to the highest and best bidder for cash in hand. The officers directing the sale reserve the right to reject any and all bids.

Each bid shall be accompanied by a certified check for 1 per cent. of the amount of the bid.

Further information can be obtained by writing A. M. SWANAY, Chairman, Vonoire, Tennessee, or Jno. B. Pennington, Clerk, Madisonville, Tennessee.

A. M. SWANAY,
Chairman Monroe County Court.
JNO. B. PENNINGTON,
Clerk Monroe County Court.

PROPOSALS

BOND ISSUES

BUILDINGS

PAVING

GOOD ROADS

Bids close July 15, 1916.

\$20,000 5% Bonds

BAYOU PAUL DRAINAGE DISTRICT,
IBERVILLE PARISH, LOUISIANA.
SALE OF DRAINAGE BONDS.

The Commissioners of the Bayou Paul Drainage District will receive sealed bids for the sale of its Drainage Bonds in the sum of twenty thousand dollars, at 3 o'clock P. M. on Tuesday, July 18, 1916, at its domicile, Rhodes Store, Rhodes, Louisiana; P. O., Burtville, Louisiana.

The bonds are in denominations of \$500 each, dated July 1, 1916, bear interest at five per cent., payable semi-annually, mature serially, beginning July 1, 1917, and ending July 1, 1929, issued by unanimous vote of property taxpayers of district, and secured by tax of twenty-five cents per acre on every acre of land in district, 10,485 acres, levied for fifteen years. Accrued interest to be paid by purchaser until date of delivery of bonds. Right reserved to reject any and all bids.

Address bids care of President, Burtville, Louisiana, marking "Bid on Drainage Bonds."

G. W. SITMAN, President.

Attest:
JNO. F. WILMETH, Secy.

Bids close July 25, 1916.

\$58,000 4 1/2% Bonds

Rockville, Md.

The County Commissioners of Montgomery County will receive sealed bids for the purchase of fifty-eight Montgomery County bonds of one thousand dollars each, up to twelve o'clock M. on the 25th day of July, A. D. 1916, at which time the same will be opened by said County Commissioners and the sale consummated to the highest bidder for cash, if in the opinion of the said County Commissioners such highest bid be an adequate price for said bonds.

These bonds are in a series of fifty-eight of one thousand dollars each, aggregating fifty-eight thousand dollars, and numbered from one to fifty-eight, both inclusive; two of said bonds, being number one and two, being payable one year after date thereof, and two of said bonds in order of their numbers being payable in each year thereafter until the entire issue of fifty-eight is fully paid.

These bonds are coupon bonds and bear interest at the rate of four and a half per centum per annum, interest being payable semi-annually on the first days of February and August in each year until the payment of the principal sum.

The principal sum and interest being payable at the Farmers' Banking and Trust Company of Montgomery County, at Rockville, Maryland.

Each bid must be accompanied with a certified check for two hundred dollars, made payable to said County Commissioners, or by cash in the sum of two hundred dollars to be paid to said County Commissioners.

By order of the Board of County Commissioners of Montgomery County, Maryland.

JOHN R. LEWIS,

President of the Board of County Commissioners of Montgomery County, Maryland.

BERRY E. CLARK,

Clerk to the County Commissioners of Montgomery County.

Bids close July 25, 1916.

\$24,000 4 1/2% Bonds

Rockville, Md.

The County Commissioners of Montgomery County will receive sealed bids for the purchase of forty-eight Montgomery County bonds of five hundred dollars each, up to twelve o'clock M. on the 25th day of July, A. D. 1916, at which time the same will be opened by said County Commissioners and the sale consummated to the highest bidder for cash, if in the opinion of the said County Commissioners such highest bid be an adequate price for said bonds.

These bonds are in a series of forty-eight bonds of five hundred dollars each, aggregating twenty-four thousand dollars, and numbered from one to forty-eight, both inclusive; two of said bonds, being number one and two, being payable one year after date thereof, and two of said bonds in order of their number being payable in each year thereafter until the entire issue of forty-eight is fully paid.

These bonds are coupon bonds and bear interest at the rate of four and a half per centum per annum, interest being payable semi-annually on the first days of February and August in each year until the payment of the principal sum.

The principal sum and interest being payable at the Farmers' Banking and Trust Company of Montgomery County at Rockville, Maryland.

Each bid must be accompanied with a certified check for two hundred dollars, made payable to said County Commissioners, or by cash in the sum of two hundred dollars to be paid to said County Commissioners.

By order of the Board of County Commissioners of Montgomery County, Maryland.

JOHN R. LEWIS,

President of the Board of County Commissioners of Montgomery County, Maryland.

BERRY E. CLARK,

Clerk to the County Commissioners of Montgomery County.

Bids Close July 3, 1916.

\$475,000 5% Bonds

HOLMES COUNTY.

Lexington, Miss.

Road District No. 1 will receive sealed bids for \$200,000 30-year Road Improvement Bonds. Interest 5 per cent., payable semi-annually January 1 and July 1 each year. Bonds to bear date of July 1, 1916, and cannot be sold for less than par plus accrued interest up to date of delivery. Certified check for 2 per cent. of amount of bid required.

Road District No. 2 will receive bids on same date and same conditions for \$175,000 serial bonds to begin to mature 10 years after date of issue, the last date of maturity to be 25 years from date of issue. Interest 5 per cent., payable same as Road District No. 1.

Road District No. 5 will receive bids on \$100,000 5 per cent. semi-annual interest bonds on same conditions exactly as Road District No. 1.

All sealed bids must be in the possession of the Clerk of the Board of Supervisors not later than 12 o'clock noon Monday, July 3, 1916, and all bids will be opened and considered at the July meeting of the Board. Bids are also requested for lithographing these bonds, to be submitted at the same meeting of the Board, but the bidders for the bonds may include in their bid the furnishing of their own lithographed or engraved bonds if they so desire.

All communications in reference to these bonds will receive prompt attention, and the Clerk of the Board will make a nominal charge for all orders of the Board. Financial summaries, certified copies, etc., furnished each applicant for same.

J. H. FUQUA,
Chancery Court Clerk.

Bids close July 25, 1916.

\$25,000 4 1/2% Bonds

Rockville, Md.

The County Commissioners for Montgomery County will receive sealed bids for the purchase of fifty Montgomery County bonds of five hundred dollars each, up to twelve o'clock M. on the 25th day of July, A. D. 1916, at which time the same will be opened by said County Commissioners and the sale consummated to the highest bidder for cash, if in the opinion of the said County Commissioners such highest bid be an adequate price for said bonds.

These bonds are in a series of fifty bonds of five hundred dollars each, aggregating twenty-five thousand dollars, and numbered from one to fifty, both inclusive; two of said bonds, being number one and two, being payable one year after date thereof, and two of said bonds in order of their number being payable in each year thereafter until the entire issue of fifty is fully paid.

These bonds are coupon bonds and bear interest at the rate of four and a half per centum per annum, interest being payable semi-annually on the first days of February and August in each year until the payment of the principal sum.

The principal sum and interest being payable at the Montgomery County National Bank of Rockville, at Rockville, Maryland.

Each bid must be accompanied with a certified check for two hundred dollars, made payable to the County Commissioners, or by cash in the sum of two hundred dollars to be paid to said County Commissioners.

By order of the Board of County Commissioners of Montgomery County, Maryland.

JOHN R. LEWIS,

President of the Board of County Commissioners of Montgomery County, Maryland.

BERRY E. CLARK,

Clerk to the County Commissioners of Montgomery County.

Bids Close July 6, 1916.

Gravel Road

Corinth, Miss.

Corinth to the Gulf Road District will, on July 6, 1916, at 2 o'clock P. M., at Corinth, Miss., let contract for building 15 miles of gravel road. Address

W. C. SWEAT, Attorney.

Bids Close July 1, 1916.

Improved Roads and Streets

Elkins, W. Va.

Sealed bids will be received until 1 o'clock P. M. Saturday, July 1, 1916, by the County Court of Randolph County, West Virginia, for the construction of approximately nineteen miles of improved roads and streets in Leadville District of said Randolph County, to be let in Sections. A Certified check in the sum of \$500.00 must accompany each bid, which will be forfeited as liquidated damages in case bidder fails to comply if his bid is accepted. The successful bidder will be required to furnish a bond equal to the total contract price, and to be approved by the County Court. Plans and specification for this work and a description of the sections are on file in the offices of the County Clerk and Road Engineer, Elkins, West Virginia, and at the office of Chaney & Armstrong, Fairmont, West Virginia. The County Court reserves the right to reject any and all bids.

W. O. TRIPLETT,

President of the County Court of Randolph County.

THADDEUS PRITT,

Clerk of the County Court of Randolph Co.

Bids close July 15, 1916.

State Highway and Bridge

STATE OF MARYLAND.
STATE ROADS COMMISSION.
601 Garrett Building,
Baltimore, Md.

NOTICE TO CONTRACTORS.

Sealed proposals for building 8 sections of State Highway, aggregating about 15.59 miles in length, and 1 bridge as follows:

Contract No. BC-3A-BALTIMORE CITY: One section of Liberty Heights Avenue from Earle Avenue to Calloway Avenue, about 1.34 miles in length. (Sheet Asphalt.)

Contract No. CI-16-CARROLL COUNTY: One section through Sykesville, about 0.75 of a mile in length. (Macadam Resurfacing, oil-bound.)

Contract No. D-17-DORCHESTER COUNTY: One section through Hurlock, about 0.93 of a mile in length. (Macadam or Concrete.)

Contract No. F-18A-FREDERICK COUNTY: One section of Emmitsburg Pike, north from Thurmont, about 4 miles in length. (Macadam Resurfacing, oil-bound.)

Contract No. F-24-FREDERICK COUNTY: One section through Jefferson, about 1 mile in length. (Macadam Resurfacing, oil-bound.)

Contract No. M-10-MONTGOMERY COUNTY: One section of road from Olney to Snells Bridge, about 5.55 miles in length. (Macadam or Concrete.)

Contract No. M-13A-MONTGOMERY COUNTY: One section of road between Norbeck and Olney, about 1 mile in length. (Macadam Resurfacing, oil-bound.)

Contract No. P-15-PRINCE GEORGE'S COUNTY: One section through Upper Marlboro, about 1.02 miles in length. (Concrete Roadway.)

BRIDGE.

Contract No. BC-9, Br. - BALTIMORE CITY: One 5-span reinforced concrete bridge, about 150 feet in length, along Liberty Heights Avenue over Western Maryland Railway.

Will be received by the State Roads Commission at its office, 601 Garrett Building, Baltimore, Maryland, until 12 M. on the 15th day of July, 1916, at which time and place they will be publicly opened and read.

Bids must be made upon the blank form contained in the book of specifications. Specifications and plans will be furnished by the Commission upon application and cash payment of \$1, as hereafter no charges will be permitted.

No bids will be received unless accompanied by a certified check for the sum of Five Hundred (\$500) Dollars, payable to the State Roads Commission.

The successful bidder will be required to give bond and comply with the Acts of the General Assembly of Maryland respecting contracts.

The Commission reserves the right to reject any and all bids.

By order of the State Roads Commission this 27th day of June, 1916.

F. H. ZOUBEK, Chairman.

WM. L. MARCY, Secretary.

Bids close July 15, 1916.

Street Paving

Erwin, Tennessee, June 19, 1916.

Sealed bids will be received by the Town of Erwin, Tennessee, until 7 o'clock P. M. Wednesday, July 12, 1916, for street paving, curbing, guttering, etc. Plans and specifications may be had upon application to the Town Engineer. A certified check of 10 per cent. will be required with each bid, and the Board reserves the right to reject any and all bids.

N. T. TUCKER,

Mayor.

Attest:
O. E. Bogart, Recorder.

Bids close July 12, 1916.

Street Paving

Hazard, Ky.

Notice is hereby given to contractors that bids will be received by the Mayor and Council of the City of Hazard, Kentucky, not later than July 12, 1916, and opened on that date at 7 o'clock P. M., for the paving of several streets in said city with concrete material, the right being reserved to accept or reject any or all bids, the work to be done aggregating approximately 21,000 square yards.

Plans and specifications will be sent upon application.

W. M. PURSIFULL,

Mayor.

Bids close July 15, 1916.

Concrete Road

Atlanta, Ga.

Sealed bids, marked plainly "Bid on Concrete Road," will be received by the undersigned until 10 o'clock A. M. Saturday, July 15, 1916, for constructing the following roads, under separate contracts:

Paces Ferry Road, 35,000 square yards.
E. Paces Ferry Road, 6,000 square yards.
Lakewood Avenue, 13,000 square yards.
Mayson & Turner Road, 25,000 square yards.
Hightower Road, 19,000 square yards.
Zoo Drive in Grant Park, 6,000 square yards.
The County reserves the right to reject any or all bids.

For specifications and further information address

C. M. HOLLAND,

Purchasing Agent,

507 Courthouse.

Bids Close July 6, 1916.

Street Improvements

Greenville, N. C.

Sealed proposals will be received by the Mayor and Board of Aldermen of the Town of Greenville, N. C., at the Town Hall in Greenville, N. C., until 3 P. M. July 6, 1916, for Street Improvements.

The work will consist of about—
39,000 square yards of Brick, Asphalt, Bituminous or other Pavement.

25,000 lineal feet of Granite Curb.
20,000 lineal feet of Concrete Gutter.
1000 square yards of Sidewalk.

And the necessary Drainage, etc.

Proposals must be marked "Proposal for Street Improvements."

All bids must be upon blank forms provided in the Proposal and Contract and Specifications.

Each bid must be accompanied by a certified check for \$200 as evidence of good faith. Plans and specifications will be on file at the Clerk's office in Greenville and at the office of the Engineer in Durham, N. C., and copies of the specifications, form of proposal, etc., will be mailed upon application to the Engineer at Durham, N. C.

The right is reserved to reject any or all bids.

ALBION DUNN, Mayor.

J. C. TYSON, Clerk.

Engineer:

GILBERT C. WHITE,

Durham, N. C.

Bids Close July 3, 1916.

Bids close July 11, 1916.

Road Construction

Rockville, Md.

Sealed proposals, addressed to the County Commissioners of Montgomery County, and endorsed "Proposals for building the Muncesters Mill Road," upon or along the county road between Norbeck and near Redland for a distance of about five miles, will be received by the County Commissioners of Montgomery County, at their Office, Rockville, Maryland, until two o'clock P. M. of the eleventh day of July, 1916, and at that time and place will be publicly opened and read.

All bids must be upon blank forms to be obtained of the Clerk to the County Commissioners at his Office, Rockville, Maryland; must give the prices proposed both in writing and figures and must be signed by the bidder, with his address.

Each bid is to be accompanied by a certified check for Two Hundred Dollars (\$200.00) payable to the Treasurer of Montgomery County, said check to be returned to the bidder unless he fails to execute the contract, should it be awarded him.

Plans can be seen and forms of specifications and contract may be obtained on cash payment of \$1.00 at the Office of the County Commissioners, Rockville, Maryland.

The Commissioners of Montgomery County reserve the right to reject any and all proposals.

By order of the Board.

JOHN R. LEWIS,

President.

BERRY E. CLARK,

Clerk.

Bids Close July 8, 1916.

Highway Construction

INFORMATION FOR CONTRACTORS.

Frederick, Md.

Sealed proposals addressed to the County Commissioners of Frederick County, and endorsed "Proposals for building a section of State-aid highway in Frederick County," upon or along the Burkittsville-Knoxville Road, between Burkittsville and Knoxville, for a distance of about 1.54 miles.

Also for building a section of State-aid highway in Frederick County, upon or along the Monrovia-Hyattstown Road, between Monrovia and Hyattstown, for a distance of about 1.52 miles, will be received by the County Commissioners of Frederick County at their office, Frederick, Md., until 12 o'clock noon of the 8th day of July, 1916, and at that time and place will be publicly opened and read.

All bids must be made upon blank forms to be obtained of the State Roads Commission at its office, 601 Garrett Building, Baltimore, Md.; must give the prices proposed both in writing and in figures, and must be signed by the bidder, with his address.

Each bid is to be accompanied by a certified check for two hundred dollars (\$200), payable to the County Commissioners of Frederick County, said checks to be returned to the bidder unless he fails to execute the contract should it be awarded to him.

Plans can be seen and forms of specification and contract may be obtained on cash payment of one (\$1) dollar, at the office of the State Roads Commission, Baltimore, Md. The Board of County Commissioners of Frederick County reserve the right to reject any and all proposals.

By order of the

COUNTY COMMISSIONERS,

FRANK M. STEVENS, Pres.

H. L. GAVEN, Clerk.

PROPOSALS

SEWERS

WATER-WORKS

ELECTRIC LIGHT PLANTS

BRIDGES

Bids Close July 20, 1916.

Courthouse and Jail

Tylertown, Miss.

Sealed proposals, addressed to Hon. J. C. Luter, Clerk of Board of Supervisors, Tylertown, Miss., will be received by the Board of Supervisors of Walthall County at Tylertown, Mississippi, until 10 A. M. July 20, 1916, for the construction of a brick courthouse building, jail and equipment. Bids will be received on heating, plumbing, electric wiring and fixtures, jail cells and courthouse furnishings separately, but at the same time.

Plans and specifications are on file at the office of the Chancery Clerk at Tylertown, Mississippi, and at the office of Xavier A. Kramer, Engineer and Architect, Magnolia, Miss.

Plans, specifications and blank forms for proposal can be had of the Architect upon deposit of \$25 to guarantee their safe return. As evidence of good faith, each proposal must be accompanied by a certified check for 2 per cent. of amount of bid, made payable without qualification to Hon. D. M. McElveen, President of Board of Supervisors. The right to reject any or all bids is reserved. Done by order of the Board of Supervisors.

J. C. LUTER,
Clerk.

Bids close August 1, 1916.

High School Building

Asheville, N. C.

Sealed proposals for the erection of a High School Building at Asheville, North Carolina, will be received by F. L. Conder, Secretary-Treasurer, until twelve o'clock noon Tuesday, August 1, 1916.

Proposals must be accompanied by a certified check, payable to F. L. Conder, Secretary-Treasurer, Asheville, N. C., in the sum of one-half of one per cent. of the amount of bid. Contractor to whom award is made will be required to furnish a surety company bond in the sum of fifty per cent. of the amount of contract within thirty days after official notice of the award of the contract and in accordance with the terms of the specifications.

Drawings and specifications may be examined at the City Hall, Asheville, N. C.

Plans and specifications can be obtained from William H. Lord, Architect, Asheville, N. C., after June 28, 1916, upon the deposit of a certified check made payable to the architect in the sum of twenty-five dollars, and upon the return of the drawings and specifications will be returned to the bidder after deducting the actual cost of blueprints and specifications furnished to bidder. The city reserves the right to reject any or all bids.

F. L. CONDER,
Secretary-Treasurer,
Asheville, N. C.

Bids Close July 17, 1916.

School Building

Cocoa, Florida.

Sealed bids will be received by the Board of Public Instruction of Brevard County, Florida, at their office at Titusville, Florida, until 6 o'clock P. M. Monday, July 17, 1916, for the erection of a Graded and High School Building in Cocoa, Florida, for Special Tax School District No. 2 of Brevard County, Florida. Said structure to be built of reinforced concrete and fireproof; hollow, interlocking tile, or of brick. Bids may be submitted for each kind of structure.

Plans and specifications to be had from Mark & Shefall, Architects, Jacksonville, Florida. Certified check for twenty (\$20.00) dollars, made payable to Mark & Shefall, to be deposited with them to assure the return of plans and specifications to them.

A certified check for five hundred (\$500.00) dollars, made payable to the Chairman of the Board of Public Instruction, Brevard County, Fla., to accompany each and every bid to guarantee that the bidder will carry out his proposal.

Bids to be opened Tuesday, July 18, 1916, at the boardroom in the County Court House, Titusville, Florida.

The Board reserves the right to reject any or all bids.

By order of the Board of Public Instruction of Brevard County, Florida.

Approved: E. SVEDELIUS,
Chairman of Board.

Attest:
EDWIN E. MACY,
Secretary of Board.

Bids close July 13, 1916.

Water-Works

Mound Bayou, Miss.

Until 8 P. M. July 13, 1916, sealed proposals will be received by the Town of Mound Bayou, Mississippi, for furnishing cast-iron water pipe, wrought-iron pipe, fire hydrants and gate valves, a 4" artesian well, oil engine and pump, and for laying the pipe.

Plans and specifications on file in the office of Dr. S. H. Harris, Town Clerk.

The right is reserved to reject any or all bids.

DR. S. H. HARRIS, Town Clerk.

Bids Close July 12, 1916.

Water Improvements and Lighting Plant

Baldwyn, Miss.

Sealed proposals will be received by the Town of Baldwyn, Mississippi, until 2 P. M. on Wednesday, the 12th of July, 1916, and then publicly opened, for furnishing machinery, materials and equipment, and constructing a water-works pumping station and electric-lighting plant in accordance with plans and specifications on file in the office of the Mayor of Baldwyn, Miss.

The work includes furnishing and erecting a pumping and power house, reservoir, oil engines, generators and switchboard, electric line and street-lighting system.

Each proposal must be accompanied by a certified check for three (3%) per cent. of the amount of bid, made payable to the Town of Baldwyn, Miss., as evidence of good faith.

Specifications, plans, form of proposal and contract may be seen at the office of the Mayor in Baldwyn, Miss., or will be mailed upon application to the Engineer, Xavier A. Kramer, Magnolia, Miss.

The right is reserved to reject any or all bids.

W. A. STOCKS, Mayor.
C. P. McWHORTER, Recorder.
XAVIER A. KRAMER,
Consulting Engineer,
Magnolia, Miss.

Bids Close July 12, 1916.

Water-Works

Salisbury, North Carolina.

Sealed proposals will be received by the Board of Water Commissioners of Salisbury, N. C., until 3 o'clock P. M. July 12, 1916, for constructing a new filtration plant and a new source of water supply.

Works will embrace laying 5 1/2 miles of cast-iron pipe, either 14 or 16 inches in diameter; furnishing and installing motor-driven centrifugal pumps, filtration plant, filter-house, reservoir, power station, gate valves, tower and tank, transformers, and other appurtenances.

Plans and specifications will be on file and may be seen at the office of the Board at Salisbury, N. C., and at the office of the Engineer in Winston-Salem, N. C., and copies of specifications, forms of proposals, etc., may be obtained from the Engineer.

The right is reserved to reject any or all bids.

MAYOR WALTER H. WOODSON,
Chairman.
J. W. NEAVE,
Superintendent.
Engineer:
J. L. LUDLOW,
Winston-Salem, N. C.

Bids Close July 3, 1916.

Sanitary Sewers

Gainesville, Fla.

Bids will be received by the Board of Public Works of the City of Gainesville, Florida, until 4 o'clock P. M. July 3, 1916, for constructing an extension to the sanitary sewerage system.

The proposed work includes approximately 2 1/2 miles of vitrified pipe sewers, 8 to 12 inches in diameter, together with manholes, riser tanks, etc.

Specifications may be obtained from I. E. Webster, Secretary. Plans will be on file and can be seen at the office of the Engineer.

Certified check for \$600 must accompany bid. The right is reserved to reject any or all bids.

H. E. TAYLOR,
Chairman Board Public Works.
G. H. CAIRNS,
Engineer.

Bids close July 18, 1916.

Sewer Improvements

Henderson, N. C.

Sealed proposals will be received for material and labor in connection with the above work, consisting of about 10,000 feet of 8-inch to 12-inch sanitary sewers, and a sewage-disposal plant, consisting of an Imhoff Tank, Contact Beds and Sludge Drying Bed, complete, with appurtenances, by the Mayor and Council, at the City Hall, Henderson, N. C., until 4 P. M. Tuesday, July 18, 1916, when they will be opened and publicly read.

Plans and specifications are on file at the office of the City Clerk and of the Consulting Engineers, to whom requests for additional information should be addressed.

Plans and specifications may be procured by prospective bidders by addressing direct the Consulting Engineers and making a deposit of \$10, which deposit will be refunded upon the return of the plans and specifications in good condition.

Each proposal must be accompanied by a certified check in the sum of five (5%) per cent. of the amount bid, as evidence of good faith upon the part of the bidder.

The city reserves the right to reject any and all bids or to accept any which may seem to it to be to the best interest of the City of Henderson.

M. H. STONE, Mayor.
G. W. ADAMS, City Clerk.
ANDERSON & CHRISTIE, INC.,
Consulting Engineers,
Charlotte, N. C.

Bids close July 26, 1916.

Levees and Ditches

Charleston, South Carolina.

The Combahee Corporation will receive sealed bids at its office in the Consolidated Company Building, Charleston, S. C., up to noon of July 26, 1916, for the construction of the following:

Six and nine-tenths miles of levee, with a total yardage of about 190,000, and six miles of open ditch, with a total yardage of about 80,000, according to the specifications and estimates of the Engineer.

Bids will be accepted for the work as a whole or for the levee and ditches separately. The right is reserved to reject any and all bids and to waive any informalities in the bids received.

No bids will be considered unless accompanied by a detailed statement of the sizes and types of dredge or excavator that the contractor proposes to use on the various classes of work.

No bids will be considered unless accompanied by a certified check for not less than 5 per cent. of the bid.

The bidder to whom award is made will be required to enter into a written contract with the Combahee Corporation, with good and approved security in an amount of 25 per cent. of the amount of the contract, within thirty days after being notified of the acceptance of his proposal. Parties making bids are to be understood as accepting the terms and conditions contained in such form of contract. For further general information see Engineers' report on file in the office of the Company in Charleston, or in the office of F. G. Eason, U. S. Drainage Engineer, Postoffice Building, Charleston, S. C., or in the office of C. W. Okey, U. S. Drainage Engineer, Tulane University, New Orleans, La.

COMBAHEE CORPORATION.
C. J. BENDT,
Sec. and Treas.

June 23, 1916.

Bids Close July 10, 1916.

Electric Light Machinery and Material

Morehead City, N. C.

Sealed proposals will be received by the Town of Morehead City, N. C., at the office of the Town Clerk, for furnishing all machinery and material for Electric Light Plant Improvements until 2 P. M. July 10, 1916, at which time they will be opened and read publicly.

The approximate quantities are as follows:

1 150 H. P. boiler, stack and steel casing.
1 300 H. P. heater.
1 150 to 210 K. V. A. generator, direct connected to Lindlow engine.
1 90 K. V. A. belt generator.
1 25 K. V. A. street lighting regulator.
1 switchboard.
1 jet condenser.
1 250 G. P. M. motor-driven centrifugal or triplex pump.
30 30' poles.
40 25' poles.
52,200 feet No. 8 T. B. W. P. copper wire.
14,400 feet No. 6 T. B. W. P. copper wire.
600 feet No. 4 T. B. W. P. copper wire.
Pole line material—list on request.

Each bid must be accompanied by a certified check for 5 per cent. of the amount bid, drawn to the order of K. P. B. Bonner, Mayor.

Specifications may be obtained from the Engineers at Atlanta, Ga.

The right is reserved to reject any and all bids.

DR. K. P. B. BONNER, Mayor.
M. L. WILLIS, Clerk.
THE J. B. MCCRARY COMPANY,
Engineers,
Atlanta, Ga.

Bids close July 26, 1916.

Pumping Plant

Charleston, South Carolina.

The Combahee Corporation will receive sealed bids at its office in the Consolidated Company Building, Charleston, S. C., up to noon of July 26, 1916, for the furnishing of the following equipment for a pumping plant, and constructing the same complete and ready for operation, for the purpose of land drainage:

Two pumping units, each composed of internal-combustion engine, pump, suction and discharge pipes, the necessary auxiliaries, all having the same capacity; the total capacity of the two units to be 35,000 gallons per minute at a static head of 3 feet.

Only bids for the entire plant erected complete will be considered. The right is reserved to reject any and all bids and to waive any informalities in the bids received.

No bids will be considered that do not follow the form of proposal accompanying the specifications for the pumping plant. The written acceptance by the Combahee Corporation of any proposal made will, with the proposal, form the contract between the Corporation and the parties making the proposal.

For further general information see Engineers' report on file in the office of the Corporation in Charleston, S. C., or in the office of F. G. Eason, U. S. Drainage Engineer, Postoffice Building, Charleston, S. C., or in the office of C. W. Okey, U. S. Drainage Engineer, Tulane University, New Orleans, La.

COMBAHEE CORPORATION.
C. J. BENDT,
Sec. and Treas.

June 23, 1916.

Bids Close July 3, 1916.

Steel Bridges

Tulsa, Okla.

Sealed proposals will be received by the Board of County Commissioners of Tulsa County, Oklahoma, on Monday, July 3, 1916, until 10 o'clock A. M., in the County Courthouse of Tulsa, Oklahoma, for the furnishing of material and construction of seventeen (17) Steel Bridges of the dimensions and locations as follows:

30'x16' Steel Bridge located between Sections 25 and 26, Township 17 North, Range 13 East.

36'x16' Steel Bridge located between Sections 11 and 22, Township 22 North, Range 13 East.

36'x16' Steel Bridge located between Sections 1 and 12, Township 22 North, Range 12 East.

45'x16' Steel Bridge located between Sections 7 and 12, Township 17 North, Range 15 and 14 East.

60'x16' Steel Bridge located between Sections 15 and 16, Township 16 North, Range 13 East.

80'x16' Steel Bridge located between Sections 30 and 31, Township 20 North, Range 16 East.

20'x16' Steel Bridge located between Sections 6 and 7, Township 19 North, Range 14 East.

16'x16' Steel Bridge located between Sections 20 and 21, Township 20 North, Range 13 East.

20'x16' Steel Bridge located between Sections 16 and 21, Township 20 North, Range 13 East.

16'x16' Steel Bridge located between Sections 5 and 8, Township 18 North, Range 14 East.

16'x16' Steel Bridge located between Sections 33 and 34, Township 19 North, Range 14 East.

70'x16' Steel Bridge located in Section 31, Township 17 North, Range 15 East.

50'x16' Steel Bridge between Sections 7 and 12, Township 17 North, Range 13 and 15 East.

60'x16' Steel Bridge in Section 12, Township 19 North, Range 10 East.

80'x16' Steel Bridge between Sections 5 and 8, Township 19 North, Range 10 East.

20'x16' Steel Bridge located between Sections 31 and 36, Township 22 North, Range 12 and 13 East.

35'x16' Steel Bridges between Sections 4 and 5, Township 21 North, Range 13 East.

As per plans and specifications on file in the office of the County Clerk and County Engineer in the Courthouse in Tulsa, Tulsa County, Okla. The Commissioners reserve the right to reject any and all bids. All bids to be accompanied by a certified check covering 10 per cent. of bid. By order of the Board of County Commissioners of Tulsa County, Oklahoma.

LEWIS CLINE,
County Clerk.

Bids Close July 6, 1916.

Electric Lighting System

Goodman, Mississippi.

Sealed proposals will be received by the Town of Goodman, Mississippi, until 2.30 P. M. on the 6th day of July, 1916, and then publicly opened, for furnishing materials, machinery and constructing a complete Electric-lighting System for the said town, in accordance with plans and specifications on file in the office of the Mayor of the said town.

This work includes furnishing an oil engine, generator, switchboard, transformers, electric line and street-lighting system.

Proposals are also invited on a D. C. installation, consisting of engine, generator, switchboard, storage battery, electric line and street-lighting system.

Each proposal must be accompanied by a certified check for three per cent. (3%) of the amount of the bid, made payable to the Town of Goodman, Miss., as evidence of good faith.

Specifications, plans, form of proposal and contract may be seen at the office of the Mayor in Goodman, Mississippi, or will be mailed upon application to the Engineer, Xavier A. Kramer, Magnolia, Mississippi.

The right is reserved to reject any or all bids.
W. E. MEEKS, Mayor.
A. N. ROBERTS, Clerk.
XAVIER A. KRAMER,
Consulting Engineer,
Magnolia, Miss.

Bids close August 10, 1916.

School Desks

Dyersburg, Tenn.

The City of Dyersburg, Tenn., will be in the market some time before August 10, 1916, for 250 or 300 school desks. Send prices, together with full description, etc., to

L. E. CARNE, Mayor.

Wanted

Work for 14B-BUCYRUS SHOVEL

And organization with it by day or contract. Address

CHARLES T. EASTBURN CO.
YARDLEY, PA.

Reprinted from
Manufacturers Record, June 8, 1916.

Polk County, Florida, Votes \$1,500,000 for Roads.

The largest single bond issue ever voted by any county in the South for good roads was ratified by the citizens of Polk county, Florida, last week by a majority of 2 to 1. It provided for an issue of \$1,500,000.

The work to be carried out under this bond issue covers 217 miles, included in which is a 55-mile section of the Dixie Highway. These roads have been so arranged that they provide for the building of highways through all parts of the county and connecting with the main highways of adjoining counties, and carry out, in a large part, the slogan of the Polk County Good Roads Association of providing a road "from every town in the county to every other town in the county."

In submitting the bond issue to the citizens for ratification the commissioners followed the usual program now in use in Florida of making contracts for specific roads, subject to the issuance of bonds by popular vote. Plans and specifications for their construction were drawn by H. S. Jaudon Engineering Co. of Savannah, Ga., and Bartow, Fla.; bids were received upon the work and all contracts were awarded before the bonds were submitted to the people.

Thus the people of the county knew exactly where the roads were to be built, of what material they were to be constructed and exactly what they were to cost, and were able to register their votes upon a thoroughly definite proposition. The fact that Polk county voted at a majority of 2 to 1 emphasizes the progressiveness of its people.

The entire system of roads is to be built of two inches of sheet asphalt on clay foundation four inches thick after compression under a 10-ton roller, and the specifications were so drawn that they provided for a sheet-asphalt pavement similar to those laid in large cities.

In connection with the road system 20 reinforced concrete bridges and 90 reinforced concrete culverts are to be constructed. The entire work is to be completed in 400 days. The various contracts were awarded as follows:

Division 1—W. P. McDonald Construction Co., Mt. Vernon, N. Y., \$284,963.75.

Division 2—Continental Public Works Co., New York, N. Y., \$218,478.75.

Division 3—Eureka Paving Co., Houston, Tex., \$299,604.75.

Division 4—E. C. Humphrey, Hackensack, N. J., \$232,630.

Division 5—Edwards Construction Co., Tampa, Fla., \$272,195.

Bridges (all divisions)—Champion Bridge Co., Wilmington, O., \$79,800.30.

Reinforced Concrete Culverts (all divisions)—Edwards Construction Co., Tampa, Fla., \$66,125.

The bonds voted are serial ones of the denomination of \$1000. Two hundred and fifty of the bonds will be due and payable annually at the rate of \$50,000 per annum between the years 1921 and 1925, inclusive. The second series of 750 bonds will be due and payable annually at the rate of \$75,000 per year between 1926 and 1935, inclusive. The third series of 500 bonds will be due and payable annually at the rate of \$100,000 per year between 1936 and 1940. The bonds bear 5 per cent. interest.

The Board of County Commissioners, by resolution made as bond trustees to handle the funds, Messrs. W. H. Lewis of Fort Meade, T. L. Wilson of Bartow and C. M. Clayton of Lakeland. In addition, the commissioners also appointed an advisory board from the Polk County Good Roads Association, consisting of one member from each commissioner's district, these being C. C. Martin of Mulberry, H. M. Mansfield of Fort Meade, J. N. Hooker of Bartow, H. W. Snell of Winter Haven and M. F. Hetherington of Lakeland.

The Board of County Commissioners in direct charge of the work are J. C. Swindel, chairman, Lakeland; J. E. Lancaster, Chicora; John S. Howard, Eloise; A. T. Mann, Bartow; W. T. Hurst, Fort Meade, and J. A. Johnson (clerk), Bartow, Fla.

The Board of County Commissioners The Designing Engineers and Five of the Contracting Firms

in charge of

Polk County's \$1,500,000 Road Work

*The Largest Single Road Bond Issue
Ever Voted by Any Southern County*

Are Subscribers to

the

MANUFACTURERS RECORD

Subscribes to the Manufacturers Record
at both Savannah, Ga., and Bartow, Fla.

Subscribes to the Manufacturers Record

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at both New York City and Mt. Dora, Fla.

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You Should Read the Manufacturers Record
if you want to get the quickest and fullest
information about Road Work in the South.

And Advertise in the Manufacturers Record
if you want to sell road materials, equip-
ment or machinery in the South.

MANUFACTURERS RECORD
BALTIMORE, MD.

Special Advertisements of General Interest.

Ship Building Plant Wanted — AT — BEAUMONT, TEXAS

Port opened for ocean-draft vessels March 23, 1916. Over one hundred and fifty thousand tons of cargo loaded since that date. Minimum depth of water 26 feet from harbor to open sea. Strong and steady local demand for new ships and large repair jobs. Abundant raw material close at hand.

Address Beaumont Chamber of Commerce,

Beaumont, Texas

N&W
NRY.W

HOTEL WANTED

A good town in Southwest Virginia affords an exceptional opportunity for a modern hotel. Town has population of 2,000, and citizens will co-operate in erection of building or organizing company. Man must have practical experience and supply best credentials. Estimated business, 15 to 20 transients per day; large number regular boarders at \$25 to \$30 per month. Town growing rapidly; new industries being established; 3 lines of railway. In writing refer to File M-7002.

OTHER OPPORTUNITIES

LARGE MACHINE SHOP, fully equipped, for sale or lease in city of 5,000 population. Refer to File M-6935.

LAUNDRY WANTED.—In West Virginia coal-mining town having population of 10,000 within a radius of four miles; good soft water free for a term of years; convenient location at small cost. A business of \$300.00 per week can be secured at start. For information refer to File M-7003.

For Mining, Industrial and other opportunities write F. H. LaBaume, A. and I. Agent, Norfolk & Western Railway Co., Roanoke, Va.

FOR SALE

Property 148 ft. x 380 ft., formerly occupied in Philadelphia by N. & G. Taylor Co.'s Tinplate Works, Delaware Ave. and Tasker St., Philadelphia. (Plant recently removed to Cumberland, Md.)

Buildings of substantial heavy mill construction; artesian well; electric elevator; power equipment. Railroad connections with all lines entering the city.

Two blocks from Delaware River front—15 minutes from banking center. Convenient access via new Delaware Ave. Improvement at all docks and factories along the river front.

N. & G. TAYLOR CO.

300 Chestnut St., Philadelphia, Penna.

BRICK PLANT

AND

Fine Clay and Shale Deposit FOR SALE

Accessible two trunk lines. Wide territory. Splendid opening for successful brick manufacturer. Will sell on easy terms. Satisfactory reason for selling. Address

BEN JOHNSON, Mansfield, La.

TO LEASE

On short or long term, 40 factories, fire and mill constructed; all connected with Chicago Outer Belt & Northwestern Ry. switches and lake transportation.

Address

Manufacturers' Terminal Co.
Waukegan, Illinois

Many well-known patents—the kind that manufacturers BUY—made our reputation as the attorneys who obtain

Patents that Protect

Write us for Evidence.
Inventor's Reliable Book Free.

R. S. & A. B. LACEY

93 Barrister Bldg. Washington, D. C.

Cotton Mill FOR SALE

A Hosiery Yarn Mill of 7000 spindles. Modern machinery. Been operated about three years.

For particulars address

O. A. ROBBINS

Florence, Ala.

WAR

or no war, we are always buying

MACHINERY EQUIPMENT

Have you an idle plant for sale? Write to us before deciding to sell publicly; we may save you time, trouble and money.

W. L. Birtwell, Crozer Bldg., Philadelphia, Pa.

FOR SALE

Half Interest in Fine Soapstone and Talc Proposition

Address P. O. Box 219, ROANOKE, VIRGINIA

Factory Property For Sale

Lot fronts 450' on the barge canal at Oswego, N. Y. One 3-story brick building, 128'x82'. One concrete and frame building 190'x75', one and two stories. Water and steam power. Exceedingly cheap. Apply

W. B. COUCH, Oswego, N. Y.

We Make a Specialty of Dismantling

Old plants of every description, such as saw-mills, electric-light plants, etc. Our terms are spot cash. Advise us what you have to offer.

THE PIEDMONT IRON & METAL CO.
BALTIMORE, MD.

INVENTORS!—"Let Us Be Your Factory"

We manufacture Special Machinery. Patented Metal Specialties of all kinds. Electric Articles, Hardware, Contract Manufacturing, Development, Sample Work. You get the advantage of our splendid equipment, up-to-date methods and wide experience. We Do It All. Tools, Dies, Stampings, Lathe, Screw Machine Work, Milling Machine Work, Metal Spindles, Metal Drawings, Castings, Plating of all kinds, Enameling, Japanning, Tinning, Galvanizing, Wood and Metal Patterns, Drafting, Designing, Blue-print Work. Send sample for expert advice. Our 25c Book Free, containing tables and valuable information. Write for it today. Address THE EAGLE MFG. CO., 1873 Blue Rock St., Cincinnati, O.

200,000,000 Feet Original Growth Yellow Pine FOR SALE

Located on the West Coast of Florida. Easy terms of payment

SOUTHERN INVESTMENT CO.

RICHMOND, VA.

If you wish to keep posted on the progress of the South read the

MANUFACTURERS RECORD

Price \$4.00 a year, or six months for \$2.00

Tampa Machinery Exchange TAMPA, FLA.

Buy, Sell and Exchange Machinery of All Kinds

WRITE US YOUR WANTS

FOR SALE

One-horse Single-Phase Motor, 3/4-horse Generator, Eastman Electric Cutting Knife, Skiving Machine, Booth Folding Machine, Singer Cloth-Stripping Machine, and 16 Singer and Wheeler & Wilson Sewing Machines, all in good order. We are going out of business is reason for selling. Full information on request and prices reasonable. LYNCHBURG MFG. CO., Lynchburg, Va.

Steam Shovel Plant PRACTICALLY NEW

70 C Bucyrus Steam Shovel.
2 10x16 Porter 36" Locomotives.
50 4-yd. 36" Western Dump Cars, 2-way.
36" Western Spreader Car.
10 36" Flat Cars.
Engines, Boilers, Hoisting Engines, Geared Locomotives, Steam Shovels, Logging Equipment, Concrete Mixers, Cars, Locomotive Cranes, Rails and Contractors' and Railway Equipment of every description. Our list upon request.

RALPH R. LEWIS CO.

538 Commercial Trust Building
Philadelphia, Pa.

FOR SALE

3300 feet 4-in. Standard Cast Iron Pipe (coated).
3 4-in. Ells.
3 4-in. 1/2 Bends.
3 4-in. Tees.
2000 lbs. Pig Lead.
This pipe was purchased some months ago, and due to change of our plans it was not used. It is therefore new, piled alongside the railroad and ready for loading.

The Erwin Cotton Mills Co.
West Durham, N. C.

Machinery Bargains

Located at Baltimore

AIR COMPRESSOR—Ingersoll Rand "Imperial Corliss" Type X.C.-3. Size 16x28x25x15x20" compound air, compound steam, capacity 1692 cu. ft. of free air per minute. Strictly first class.

CRUSHING PLANT, No. 6 and No. 3 McCully Gyratories, with 50 ft. and 23 ft. elevators, 14 ft. screens, Superior Sand Rolls and 125 hp. Chandler and Taylor engine. Ready for service.

HOISTING ENGINES. Ten 7x10 inch double cylinder, double drum hoists, skeletons, with boom swingers and independent swinging engines. One 8 1/4 x10 inch double cylinder, three drum hoist, skeleton. Lidgerwoods, Lamberts and Mundy.

DERRICKS, Eight GUY DERRICKS, 70 to 92 ft. masts, 65 to 90 ft. booms, 14 to 16 inch fittings. Five Stiff Leg Derricks, 20 to 50 ft. masts, 40 to 65 ft. booms, 12, 14 and 16 inch fittings. Good condition.

CONCRETE MIXER. One Smith 1 cu. yd. batch, with vertical steam engine, hoppers, etc.

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Exceptionally placed for manufacturing sites. Over 2900 feet of river frontage, with an average depth of 3000 feet, a total of about 230 acres. Also a smaller tract of 44 acres with a river frontage of 750 feet. Good rail facilities available. These properties can be had at advantageous terms. Enquire,

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Valuable ore property, consisting of over 50,000 acres in Western Kentucky. Part timber and some farm lands. For particulars write

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We have \$40,000 to use in
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A wholesale dry goods house
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Floor space under roof, 52,391 square feet.

Heavy mill construction, built on concrete piers, well lighted and ventilated.

Elevator, 7'x14', power with platform.

Drykiln equipped with trucks.

Refuse conveyors.

Power plant—4 tubular boilers, 125 horse-power, with two engines, one for driving sawmill and one for main building. Boiler-house built of concrete, brick and steel, and strictly fireproof.

Yard space ample for piling rough stock for air drying.

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Insurance rates low.

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Hardwood timber supply unlimited.

Markets in close proximity.

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To a consumer of oak, ash, hickory or gum logs or of lumber of these species we are prepared to offer an attractive and unusual proposition.

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"THE LARGEST HARDWOOD MILL IN THE WORLD"

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Big Snaps!

For Quick Buyers and Immediate Shipment.

Secured in our recent purchase of the Rittenhouse & Embree Plant and other big deals.

- 3 400 H. P. Erie City water-tube boilers, complete with feed pumps, heater and all equipment.
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- 1 30" Berlin double-cylinder surfacer
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- 4 Cyclone dust collectors, swing saws, self-feeding rip-saws, pulleys, shafting, hangers and complete equipment at bargain prices for quick sale.

Ask for your copy of our latest complete list.

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FOR SALE

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- 3 66"x18" Butt Strapped, Triple Riveted Horizontal Tubular Boilers, complete.
- 1 150 H. P. Scotch Marine Type Internally Fired Boilers, practically new—good for 150 lbs. steam pressure.
- 2 150 H. P. each Stirling Water-tube Boilers.

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- 1 20x27 Russell 4-valve Automatic Engine.
- 1 15x20 Russell 4-valve Automatic Engine.
- 1 14x18 Russell Left-hand Single Valve Engine.

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- 1 75 K. W. 250-volt 6-pole Compound Wound Direct Current Generator, direct connected to 14x14 Ballwood Automatic Engine.

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Dynamos, Motors

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Let us have your requirements.
Wanted complete power plants or parts.
For immediate shipment, 200-ton Watson Stilman Hydraulic Press, complete with pump and fittings. Practically new.

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GOOD SECOND-HAND MACHINERY

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- 1 42-in. 3-Drum Invinible Sander.
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- 1 28x8 Woods 6-Roll Double Surfacers.
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Woodworking Machinery of All Kinds.
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- 20-ton Buffalo Refrigerating Machine.
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- 500 Burke 250 28x30 Porter Allen.
- 2 350 250 C. C. Nordberg Corliss.
- 2 336 G. E. 250 16 & 27x24 Russell T. C.
- 300 West. El. 250 17 & 32x18 Ideal T. C.
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- 100 Westing. 250 16x14 Ide ride crank.

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First-Class Used Machinery

For Every Conceivable Kind of

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For Sale Cheap

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- Six 300 H. P. Helne, 150 lbs. steam; two 525; one 375; four 250 and 300; four 208 H. P., all Babcock & Wilcox, 150 and 160 lbs. steam; six 300 H. P.; seven 250 H. P. and eight 208 H. P., all Stirling, 150 and 160 lbs. steam; 18 Stacks, 48, 40 and 60" diameter, different lengths up to 100 ft., 1/4 and 3/8 material, like new, with hoods and stack plates; four 125 H. P. and two 150 H. P.; also two 100 H. P. Horizontal Return-Tubular Boilers, 125 lbs. steam; also one 150 H. P. Locomotive Type Boiler, 150 lbs. steam, complete with stacks, four years old; shaft and head like new for 7 1/2 Gyrotory Crusher.

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- 28x48 Hamilton. 22x60 Bates.
- 14x30 Hardie-Tynes. 16x42 Allis.

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- 4 66x16 Return Tubular.
- 2 72x18 Return Tubular.
- 2 300 H. P. Helne Water Tubular.

Write us regarding what you want to buy or sell.

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FOR SALE

- One 7 1/2-ton Industrial four-wheel locomotive crane fitted orange peel bucket.
- Two 1/4 and one 1/2-yard Foote concrete mixers.
- One portable gasoline-driven air compressor, 100 tons 30-lb. relay rail.

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FOR SALE

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- One Blake Single Air Pump and Jet Condenser, 14x22x24.
- One 500 H. P. Feed Water Heater, "open" type.

All first-class condition.

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3-OIL ENGINES

3-225 H. P. AMERICAN
DIESEL COMPLETE

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FOR SALE

- 1 75 K. W. Crocker-Wheeler, 125 volts, D. C., direct connected to Ball-Wood engine.
- 1 75 K. W. General Electric, 125 volts, D. C., direct connected to Harrisburg "Ideal" engine.

- 4 miles of 40-lb. Relayers.

- 1 150 K. W. Westinghouse, 440 volts, A. C., direct connected to Chandler & Taylor engine.

- 1 150 H. P. Return Tubular Boiler, 125 lbs. pressure.

- 3 No. 90 Berlin planers.

- 1 Complete plant for manufacture of window screens and doors.

- 75 tons 25-lb. Relayers.

- 6 Drykilns containing 75,000' 1" wrought-iron pipe and 4" headers.

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FOR SALE

One Wetherill Corliss Engine, 300 horse-power, cylinder 22x42, in first-class condition, for immediate shipment.

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- No. 79—22"x16" Double Head 5-step Cone Head Lathe.
- No. 87—24"x12" Friction Head Lathe.
- No. 30—Gridley Automatic 3 1/4" single-speed Belt-driven Turret Lathe.
- No. 47—Gridley Automatic 3 1/4" Single-speed Belt-driven Turret Lathe.

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- No. 1337—Compton-Knowles Loom Works Keyseater, 60" stroke, 48" swing.
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- No. 1379—Universal Swivel Table for radial drill.
- No. 515—Oliver No. 3 Wood Trimmer on pedestal.
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- No. 1336—No. 90 Sturtevant Blower.
- No. 2531—Sturtevant Blower, 2 1/2" outlet.
- No. A-2033—Laidlaw-Dunn-Gordon Duplex Feed Pump.
- No. 60—Covel Mfg. Co. Automatic Circular Saw Sharpener.
- No. 2032—Commercial Electric D. C. 40 K. W. 110-volt Generator, compound wound.
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- 1 1/4 H. P. Triumph Electric, D. C., 110-volt, 1100 R. P. M.
- 1 5 H. P. Reliance, D. C., 220-volt, 1150 R. P. M.
- 1 3 H. P. General Electric, 220-volt, A. C., 60-cycle, 3-phase, 1800 R. P. M.
- 1 1 1/2 H. P. Bullock, 220-volt, D. C., 600 R. P. M.
- 1 5 H. P. General Electric, 500-volt, shunt wound, type C. R., 5-speed variable, 500 to 1000 R. P. M.
- 1 3 1/4 H. P. Western Electric, 110 or 220-volt, D. C., variable speed, 400 to 1675 R. P. M.
- 1 5 H. P. Reliance, D. C., 220-volt, 1150 R. P. M.
- 40 Chucks of all sizes.

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The Lodge & Shipley Machine Tool Co.
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Electric Traveling Cranes

10 Ton Niles
44 ft. Span
3 Motors, Crocker-Wheeler
Direct Current, 230 volts.

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50 ft. Span
3 Motors, Crocker-Wheeler
Direct Current, 230 volts.

MODERN CRANES, FINE CONDITION; CAN BE SEEN IN OPERATION

NEW YORK MACHINERY EXCHANGE

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SPECIAL SALE

OF

Heavy Steel Jib Cranes

With Swinging Jib Chain
Rack and Hoist

- One 6-ton 12' Heavy Steel Jib, 22' Mast.
- Two 15-ton 22' Jib, 22' Mast.
- One 20-ton 15' Jib, 22' Mast.
- One 30-ton 25' Jib, 22' Mast.
- One 35-ton 20' Jib, 22' Mast.

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- Two No. 23 Landis Plain Grinders with crankshaft attachments; A1.
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- One 50"x36" Hewes & Phillips Compound Rest Triple-Gear Lathe, complete; good.
- One No. 4 Beaudry Champion Power Hammer; A1.
- One 1 1/2"x12" Baker No. 1 Keyseater; A1.
- One 54" Hewes & Phillips Slotter; good.

Also STEEL Buildings, Structural Machinery and stock of Standard Machine Tools.

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Rebuilt—Ready for Work

5-Ton PIERCE-ARROW
WITH DUMP BODY

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WITH DUMP BODY

Also a complete stock of second-hand locomotives, cranes, rails, cars, steam shovels, hoisting engines, derricks, air compressors, rock crushers, drills, pumps, concrete mixer, boilers, engines and electrical equipment.

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Two No. 7 Gates Ball Mills in first-class condition; practically new plates. Will sell at a bargain.

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FOR SALE

Entire Equipment of the American Carbonate Co.'s Plant at N. Y. City, and the Bishop & Babcock Co. at Jersey City, N. J.

An exceptional opportunity to secure high grade machinery and equipment at greatly reduced prices.

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- 1-Hewes-Phillips, 150 H.P. Corliss engine (non-condensing compound)
- 1-Hewes-Phillips, 100 H.P. Corliss engine
- 1-N. Y. Safety, 15 H.P. steam
- 1-Orr & Sombower, 10 x 10 upright steam
- 1-Beggs, 4 x 6 slide valve steam
- 1-Troy, 4 x 6 slide valve steam

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- 1-R. D. Wood & Co. Taylor Patent 8' x 14'
- 1-R. D. Wood & Co. Taylor Patent 7' x 14'

BOILERS

- 2-Henry Vogt & Bro. 125 H.P. Horizontal Tubular boilers
- 1-Parker Boiler Co., 155 H.P. Water Tube
- 1-Sterling Water Tube, 150 H.P.
- 1-Worthington Water Tube, 140 H.P.
- 1-Cunningham Horizontal Return Tubular, 125 H.P.
- 1-Loce type, 100 H.P.
- 1-Erie City Horizontal Return Tubular, 80 H.P.

PUMPS

- 1-Worthington Duplex steam, 10 x 6 x 10 brass rods
- 2-Worthington Duplex steam, 10 x 7 x 10 bronze rods
- 1-Deane Duplex steam, 10 x 14 x 12 steel rods
- 2-Worthington Duplex steam, 6 x 4 x 6 bronze rods
- 2-Worthington Duplex steam, 4 1/2 x 2 1/2 x 4 bronze rods

- 1-Deane Triplex, 4 x 6 bert driven, geared
- 1-Snow Automatic, 6 x 4 x 6 brass fitted

COMPRESSORS

- 1-Norwalk 3 stage, compd. steam, 10 x 16 x 16" stroke, air 10' x 7 1/4 x 3 3/4 x 16"
- 2-Norwalk 3 stage, compd. steam, 10 x 20 x 16" stroke, air 10' x 7 1/4 x 3 3/4 x 16"
- 2-Clayton Duplex steam, 10 x 14 x 10
- 1-Ingersoll-Sargeant, 10 x 10", Class E, belt driven
- 1-Ingersoll-Rand, Class R-C, steam, 10 x 10 x 14
- 1-Fraser & Chalmers 2 stage, 4 1/2 x 11 1/4 x 24" stroke, belt driven
- 1-Ingersoll-Sargeant, 12 x 11 1/4 x 1 1/2 x 12" stroke, steam driven

TANKS

- 5-Round vertical iron purifying, 2' x 20'
- 1-Coke tank, 2' x 15'
- 1-Coke tank, 2' x 13'
- 2-Horiz. oil storage, 5' x 16', 2300 gals. cap.
- 1-Gasometer, 38' x 18'
- 2-Closed, 48' x 15'

TANKS WITH COOLING PIPES OR COILS

- 2-High Press. Gas cooling, 3' x 12 1/2 x 7' with 1' extra heavy copper coils
- 1-Water cooling, 40' x 54' x 42" copper tubes
- 1-Water cooling, 42' x 54' x 38" copper tubes
- 2-Low Press. Gas cooling, 4 1/2 x 21' x 5 1/2' with 3' copper coils

Also: Calcining Retort Stoves, Blowers, Conveying Machinery (Link Belt Co.) Dust Collectors, Grinding and Packing Machinery, Scales, Barrows, Trucks, Shafting, Hangers, Pulleys, Etc.

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H. McK. Glazebrook

114 Liberty Street,

New York City

Phone: 776 Rector

Lathes and Turret Lathes in Stock

List given below is but a small portion of our stock of Machine Tools. We can furnish second-hand Milling Machines, Boring Mills, Radial Drills, etc. The stock changes rapidly, but we can furnish special lists each week.

LATHES

- 12"x5" New Shepherd (5).
- 13"x7 1/2" New Carroll Jamieson (2).
- 14"x10" Prentice T. A.
- 16"x6" Blaisdell (2).
- 16"x6" Harrington.
- 16"x7" Wheeler.
- 17"x8" New National, Q. C. G. (3).
- 18"x8-6" Rahn Mayer.
- 18"x10" Rahn Mayer, T. A.
- 18"x10" Rahn Mayer.
- 18"x10" Cincinnati.
- 3 19"x8" New Sidney, swing 21".
- 20"x10" Flather.
- 20"x10" Blaisdell.
- 21"x8" Beaman & Smith.
- 24"x10" Putnam.
- 24"x16" Union.
- 26"x14" Star.
- 28"x12" Pittsburg D. B. G., Q. C. G.
- 11 26"x48"x14" New Double Spindle McCabe New Style.
- 2 26"x48"x18" New Double Spindle McCabe New Style.
- 40" Swing Conradson 3 1/4" H. S. Semi-Automatic Turret.
- 2 1/2 Wire Feed Foster Ring B. G. Friction Head Power Feed to Turret.
- 2 2"x24" Jones & Lamson.
- 14x7" Foster Ring B. G. Friction Head 1 1/2" H. S. Octagon Turret.
- 14x5 Bridgeport.

CORLISS ENGINES—Special

- 750 H. P., 28"x48" Harris Corliss Engine, left hand, 18" wheel, 52" face, absolutely in first-class condition and in perfect running order, at a special attractive figure before removal from its present foundation in North Carolina.

WATER TUBE BOILERS

- Six 300 H. P. Heine Water-Tube Boilers, 160 lbs. working pressure.

Horizontal Return Tubular Boilers

- Three 150 H. P., 72"x18" Erie City Iron Works, 125 lbs. steam working pressure, at a special low figure, f. o. b. cars North Carolina.
- One 125 H. P., 66"x18" Horizontal Return-Tubular Boiler, 125 lbs. steam working pressure.

LOCOMOTIVE BOILERS

- Two 100 H. P. Locomotive Tubular Boilers, 100 lbs. working pressure.
- Two 150 H. P. Locomotive Tubular Boilers, 100 lbs. working pressure.

ELECTRICAL EQUIPMENT

Motors, 60-Cycle

- One 150 H. P. Crocker-Wheeler, 3-phase, 60-cycle, 2200-volt, 600 R. P. M.
 - One 75 H. P. Crocker-Wheeler, 3-phase, 60-cycle, 220-volt, 720 R. P. M.
 - One 75 H. P. Westinghouse, 2-phase, 60-cycle, 220-volt, 580 R. P. M.
 - One 50 H. P. Allis-Chalmers, 3-phase, 60-cycle, 220-volt, 1120 R. P. M.
- Also several hundred smaller size motors in stock available for immediate delivery, one, two and three phase, 110, 220 and 440 volts.

25-Cycle Motors, 220-440 volts

- One 40 H. P. Wagener, 3-phase, 25-cycle, 750 R. P. M.
 - One 30 H. P. Wagener, slip ring type, 3-phase, 25-cycle, 710 R. P. M.
 - One 30 H. P. Westinghouse, "CCL," 3-phase, 25-cycle, 750 R. P. M.
 - Two 25 H. P. General Electric, form K, 25-cycle, 3-phase, 750 R. P. M.
 - Two 20 H. P. Westinghouse, "CCL," 440-volt, 3-phase, 710 R. P. M.
- In addition to the above, we carry a full stock of Generators, direct connected and belted, also a large stock of D. C. Motors, 110, 220, 550 volts.

Send for complete stock list of Steam and Electrical Equipment.

FRANK TOOMEY, Incorporated

127-131 N. Third Street

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FOR SALE AT WASHINGTON, D. C. STEEL BEAMS, CHANNELS and TEES

From Southern Railway Company's Office Building

Write for list and prices

300 tons immediate delivery

400 lengths Standard 12" Cast Iron Pipe

Good as new, at Lenover, Pa.

Immediate Delivery

Address

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FOR SALE—CIRCUIT BREAKER

One Back-Connected, Triple-Pole, 600-Volt, 50 Amperes, Form C. P., Hand-Operated, Overload, 2-Coil Circuit Breaker, mounted on B. V. M. Sub-Panel. Size 27 1/2 x 24 x 1 1/2 inches. Complete with Panel Bolts and fittings. New, never been used. Price \$50 f. o. b. Oak Ridge, Virginia. Address

C. H. YATES, Oak Ridge, Va.

Yale & Towne Half-ton Triplex Trolley

Chain Blocks for 5-inch Beam

\$37.50 EACH

RODRIGUES—Whipple St.
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Two belt driven; Kinney duplex rotating type. 500 gallons minute, oil or water. Used only three months.

HAFFNER

44 Whitehall Street

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ELECTRICAL APPARATUS

Bought, sold, exchanged, rented and repaired. Large stock of motors and small generators. Write for our A. C. motor price-list. Get our repair and rental prices. Send us a list of the equipment you have for sale.

V. M. NUSSBAUM & CO.

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FOR SALE PIPE

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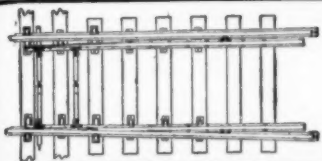
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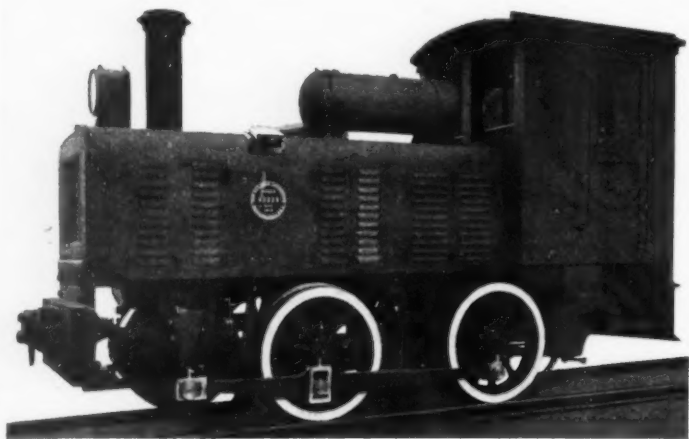
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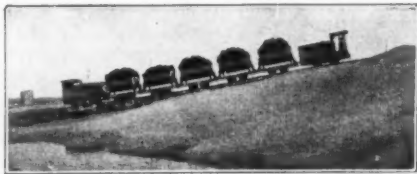
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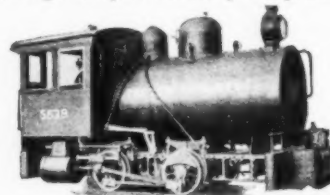
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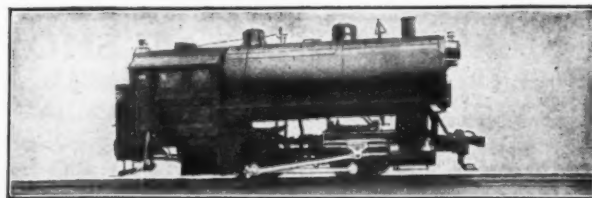
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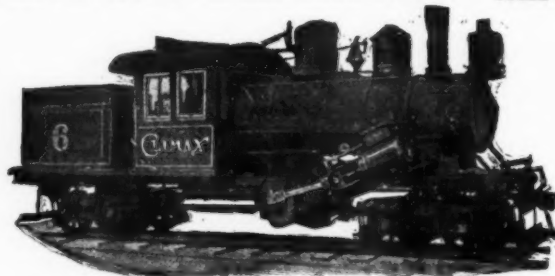
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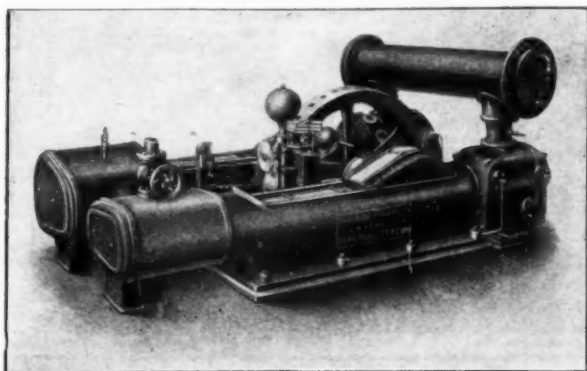
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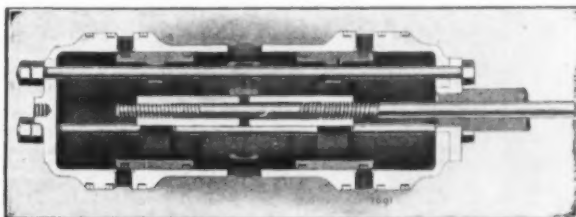


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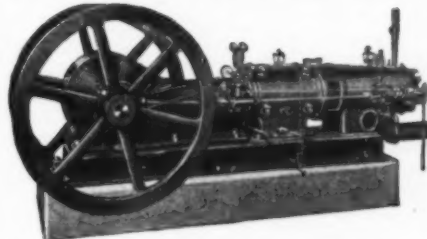
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They are made in capacities up to 550 cubic feet, and will operate successfully on Crude Oil, Stove Oil, Diesel, Coal Oil, Fuel Oil, Star Oil, Solar Oil, Kerosene, Residuum, Calol, Gas Oil, which means **Low Operating Cost.**

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Hemispherical and Segmental Bottoms

Manufactured at Pittsburgh, Pa.
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Height 119 ft.



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The imperishable nature of the Cypress used
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after years of constant use, are as tight and
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Wind Mills—Pumps—Gas Engines



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Tanks Anywhere for
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If Made of Steel We Make It

Structural Steel Work

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Easy to Build Easy to Repair

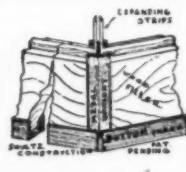
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Sell Silo complete, or furnish the
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They are manufactured under the most favorable conditions in a plant
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Tanks That Experts Buy Are A Safe Buy For You

Railroad men know what constitutes
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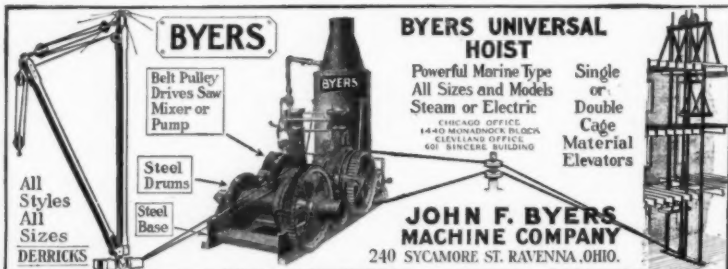
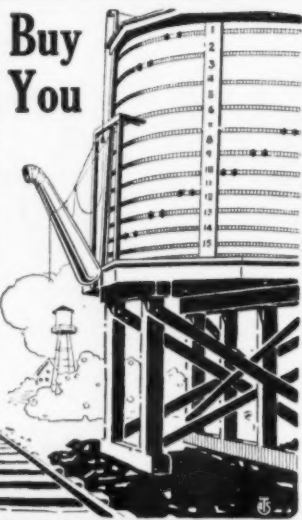
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Established 1888

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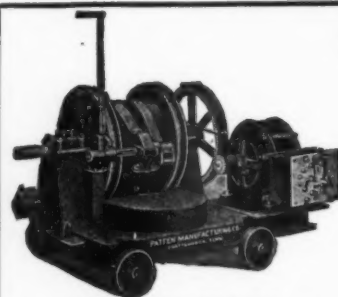
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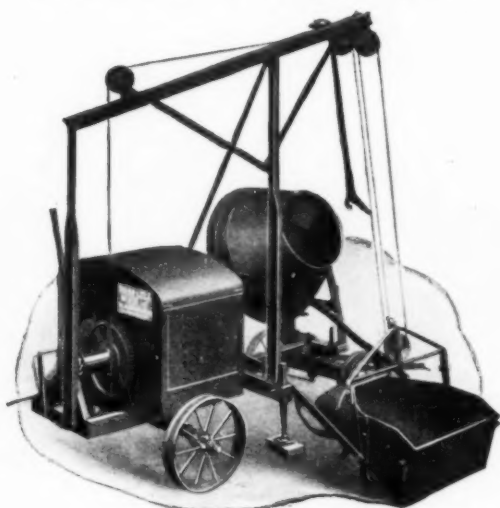
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Trust to Your Own Good Judgment



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"Big-an-Little" Concrete Mixers

you will readily see, are not complicated, but simple in design, good in construction, and have a large or small daily capacity—

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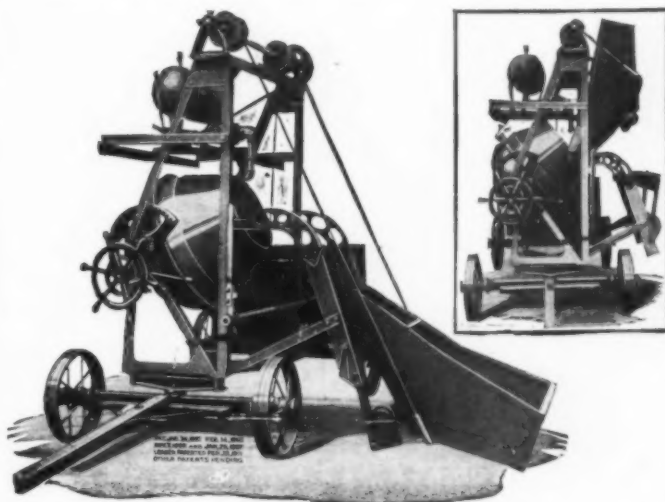
No parts to wear—an assurance of long life.

Combine these qualities with price, then you will not hesitate in buying a Jaeger "Big-an-Little" NOW.

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WONDER MIXERS

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Folding Track Loaders

Built in capacities of 5 to 6, 7 to 8 and 10 to 11 cubic ft. per batch

Before buying any mixer, investigate the advantages the new models of the WONDER give in Quality, Economy and Actual Money Earning Capacity. The new Folding Track Loader is only one of many superiorities that make the difference between a permanent dividend paying investment and a yearly "junk" proposition. This is why many nationally known engineering firms use from 20 to 50 WONDERS each. Let us put you in touch with them.

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Southern Representatives: ATLANTA, 507 4th Nat. Bk. Bldg. RICHMOND, 203 Real Est. Ex. Bldg. BALTIMORE, 110 S. Howard St. MIAMI, 1110 1/2 Avenue "C"

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We Standardized the 125 Lbs. Pressure Hoisting Engine

Like Putting Money in the Bank



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Steam and Electric
Hoists for all kinds
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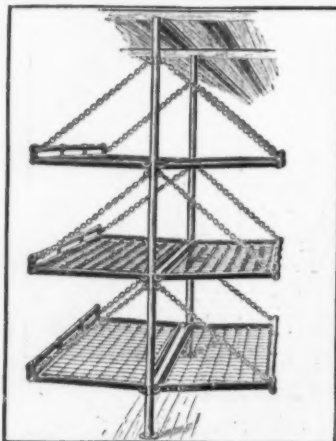
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More than 35,000 Steam and
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Contractors' Standard Steam Hoist
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Fireproof and Sanitary

Made of best grade steel and malleable iron—they will not burn; do not collect dust and are easily cleaned. Cost less in the long run than old-style wooden bunks. Equip your entire outfit with

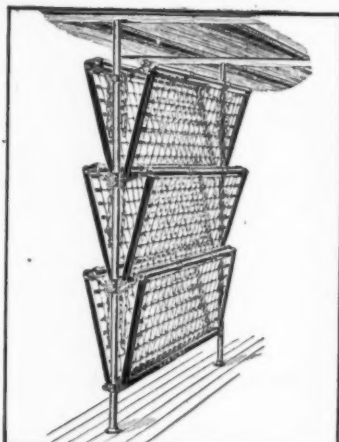
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Used and endorsed by some of the largest firms in the country and the U. S. Government. Give your men a good night's sleep and you can expect a better day's work.

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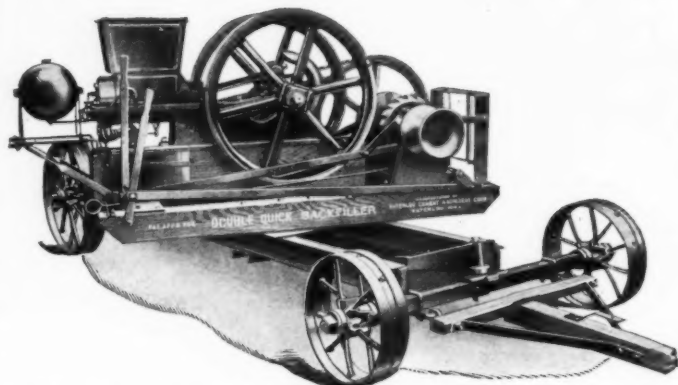
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ROME METALLIC BEDSTEAD CO.
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2c. Per Cu. Yd.

WITH THE
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Takes the place of 25 men. Dispenses with mules—investment no larger than for one team.

7 H. P. gasoline engine mounted on revolving platform and attached to scraper by cable backfills with astonishing speed. Requires but two men. Pulls sheeting; "snatches" teams; loads and unloads; lowers pipe in trench; hoists material; applies power in any direction, and useful in a hundred time and money saving ways.

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No chains, no ratchets, no dogs. But a new idea that creates speed, positive action and safety. A one-man dump wagon. Write for circular.

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ROLLER BEARING CARS and TRUCKS

OF ALL KINDS, FOR ALL PURPOSES
SWITCHES, TURNABLES
Complete Industrial Railway Equipment
Write for Catalogue and Prices.
THE CHASE FOUNDRY & MFG. CO.
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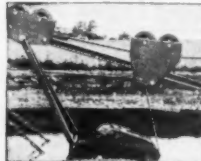
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Capacities ranging from 100 to 5,000 tons per day.

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Strictly a contractor's shovel. Revolving type. Handy to operate. Simple, Strong, Durable.

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Will make your job a profitable one

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Standard Wire Rope, Manila and Sisal Cordage, Fibreclad Wire Rope. A Rope for Every Service. Write for Prices

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The above illustration shows the SHEARER & MAYER DRAGLINE CABLEWAY EXCAVATOR delivering sand and gravel direct to screening plant.

The efficiency and economy of this machine is readily seen when you stop to consider that ONE MAN, ONE MACHINE, ONE OPERATION accomplishes all the work of digging the material and delivering it a distance of 500 ft. to the plant.

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Cableway Excavators, Power Scrapers and Cableway Accessories.

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Spans the cut and built any desired width. Invaluable for clean-out and has made good on all kinds of ditching, drainage, irrigation and large tile work. Easily and quickly dismantled and transported and



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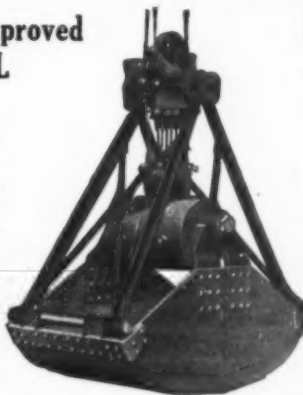
Bay City Dredge Works, 2609 Center Avenue BAY CITY, MICH

Owen Clam Shell Buckets

The New Improved Type L

Lubricated Bearings

IN addition to those exclusive features of construction which have always "Insured a Bigger Day's Work" with Owen Buckets, our new Type "L" has a new feature which will insure you a longer life of



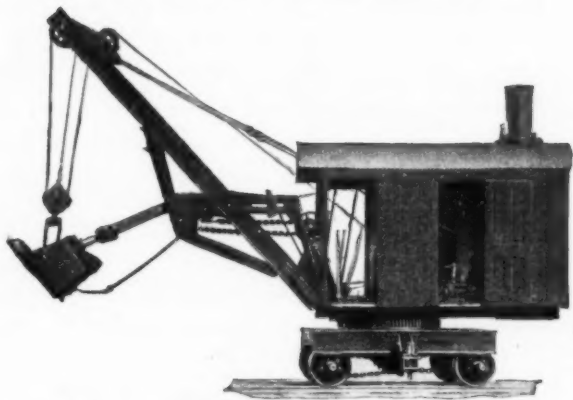
useful service at a lower cost of maintenance than is possible with any other grab bucket. Bulletin No. 5 tells why. Its bearings are (1) larger, (2) protected and (3) lubricated. Bulletin No. 5 shows how. Write for it.

The Owen Bucket Co.

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What Constitutes Low Maintenance Cost in a Steam Shovel?



Thew Shovels are so well built that 100 or 200 of the last Thews shipped could be chosen and a maintenance cost per shovel year shown that would be practically nil.

Maintenance charges on any new shovel for the first year or two should be very small.

The real acid test of maintenance cost is the test of years of service. Apply this test to steam shovels and The Thew stands supreme. The fundamental principles—patented features—in the Thew design enables it to do a given work with less effort, less wear and tear, lower cost of maintenance and fewer expensive delays on account of "breakdowns" than is possible when these principles are not employed.

The first Thew Shovel has been in service nearly 25 years.

The owner of this shovel wrote in February, 1916, as follows:

"It is not very handsome to look at, but it does its work without any trouble. We can say nothing too good for the shovel or The Thew Shovel Company.

Write any one of over 1300 Thew owners and you will receive similar testimony. Remember, it is shovel performance rather than claims that really counts.

If you are not familiar with the design and construction of the latest Thews, write for Circular 26-O and list of Thew owners near you.



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For River and Harbor Work



FOR cleaning up rivers and harbors, building breakwaters, embankments, or any kind of dredging, Hayward Orange Peel Buckets are more economical than most other types of machines. The depth of their dredging is only restricted by the length of the operating lines.

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BUILDERS OF ORANGE PEEL, CLAM SHELL, DRAG SCRAPER AND ELECTRIC MOTOR BUCKETS

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BITOSLAG

An improved asphaltic concrete pavement made by special process, using crushed slag.

Bitoslag Paving Co.

90 West St., New York

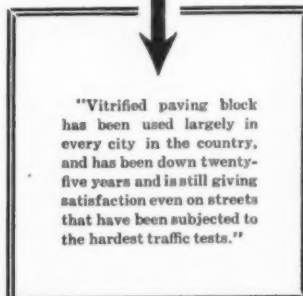
Chestnut Street,
Chattanooga,
Tenn.

Paved with
Wire-Cut Lug
Brick



PAVING BRICK
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Governor Glynn
of New York
said



"Vitrified paving block has been used largely in every city in the country, and has been down twenty-five years and is still giving satisfaction even on streets that have been subjected to the hardest traffic tests."

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THE DEPENDABLE ROADWAY

Southern
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JOHN W. SIBLEY, Sec. and Treas.

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WONDER PAVER

Sets a fast pace for the crew by its rapid loading, mixing, discharging, easy handling and quick moves. At the end of the day you have laid more yardage than with a big heavy machine of twice the cost.

CAPACITY: Drum, 10 to 11 cubic feet per batch. Actual records on various jobs show following yardage, depending upon working conditions and size of batch:

4-inch, 90 to 135 Sq. Yds. per hour 6-inch, 60 to 90 Sq. Yds. per hour
5-inch, 80 to 125 Sq. Yds. per hour 7-inch, 50 to 80 Sq. Yds. per hour

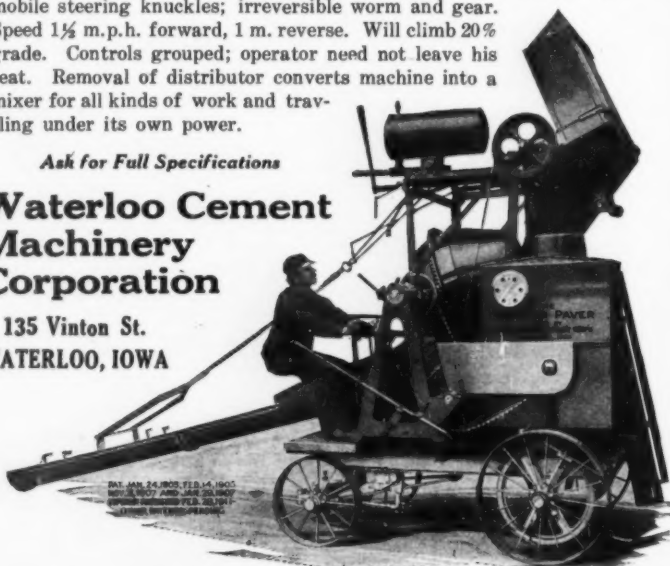
DISCHARGE at 12, 9 or 6 feet from machine.

POWER: 8 H. P. vertical gas engine. Strong differential; heavy automobile steering knuckles; irreversible worm and gear. Speed 1½ m.p.h. forward, 1 m. reverse. Will climb 20% grade. Controls grouped; operator need not leave his seat. Removal of distributor converts machine into a mixer for all kinds of work and traveling under its own power.

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WATERLOO, IOWA



HIGH-GRADE PAVING BRICK

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Office—610 First Nat. Bank Bldg. Birmingham, Ala.

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BEST TESTERS AND MOST DURABLE
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CRUSHED STONE
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General Contractors

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WATER WORKS
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ROAD PRESERVATION

FOR GRAVEL, MACADAM, CHERT AND SAND CLAY ROADS

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The CUMMER One-Car ASPHALT PLANT

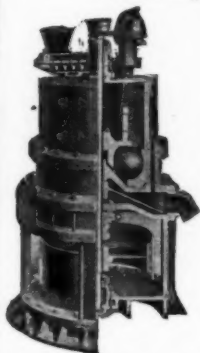
Capacity 2000 Square Yards 2-Inch Top or Macadam Daily

The CUMMER ROAD ASPHALT PLANT

Three Sizes. Three Units. Capacity 750, 1250 and 1800 Square Yards 2-Inch Top or Macadam Daily

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Plants in Stock. Can Show Them in Operation

The Fuller-Lehigh Pulverizer Mill**A Complete Self-Contained Grinding Unit**

The Most Economical Mill for Producing
Agricultural Limestone.
Ground Phosphate Rock.
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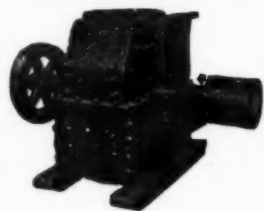
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A machine which gives the same capacity but uses 5-10 H. P. less than other crushers. Saves between \$350 and \$500 a year for you in power costs alone. The All-Steel No. 1

K-B PULVERIZER

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Built for Service and Durability.

Reliance Crushers

Are fully described in our
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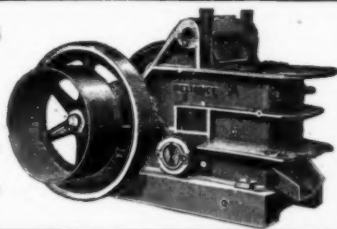
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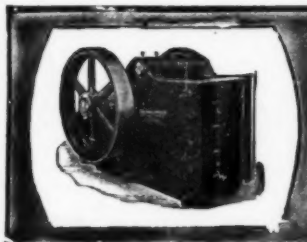
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All-Steel
CRUSHERS**

Crushing Rolls—Magnetic Separators
Crushing Plants complete in all details
from 100 to 5,000 tons daily capacity.

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**Complete Plants for Washing and Preparing
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WASHERS, Wood or Steel Logs. ORE JIGS for Hard Service. ELEVATORS,
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It fully catalogues the Raymond Pulverizing and Air Separating System, yet it is a
good deal more than a catalogue, and is full of information valuable to any company
which reduces any material to powder. Ask for a copy.

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**GRINDING MACHINERY
of Every Description. Complete Installations.****GRUENDLER PAT. CRUSHER & PULVERIZER COMPANY**

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ST. LOUIS, MO.

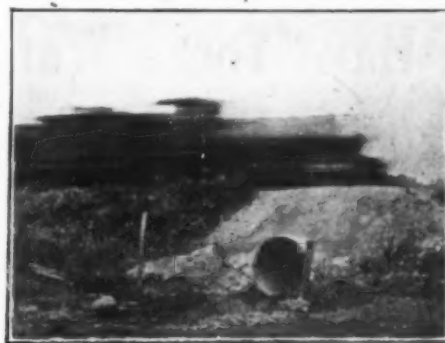
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Revolving, Shaking or Stationary Screens to handle wet, dry or powdered,
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"ACMES"
stand
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Here is a 60-inch "ACME" (Nestable) Corrugated Metal Culvert giving service under the constant pounding of the fast trains of a prominent American Railway System.

"ACMES" have records of actual service for eight (8) years under varied conditions without a sign of disintegration yet.

They are a permanent culvert.

"ACME" (NESTABLE)

Corrugated
Anti-Corrosive



Galvanized
Culverts

—bear the "NO-CO-RO METAL" brand on every section—and that trademark stands for 99.90% pure iron, guaranteed by surety bond so to analyze. There is no purer iron, manufactured for corrugated culvert use and the "ACMES" prove it both in actual resistance to corrosion and general serviceability.

Shipped Set-up or knock-down as you prefer. Write for catalog G-9.

THE CANTON CULVERT & SILO CO.
MANUFACTURERS
CANTON, OHIO, U.S.A.

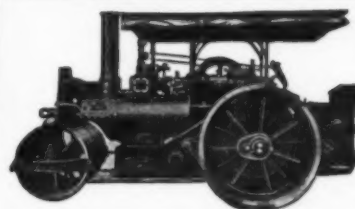
AMERICAN INGOT IRON "ARMCO" CULVERTS

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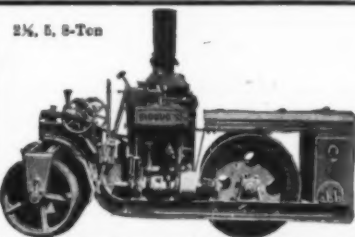
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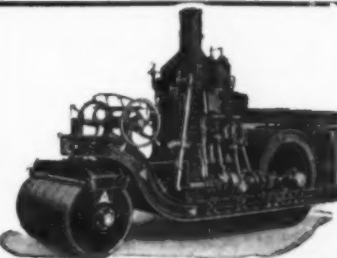
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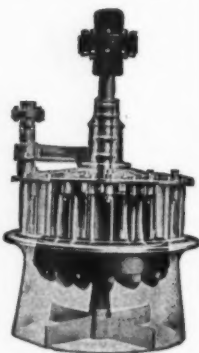
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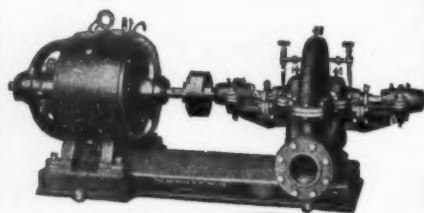
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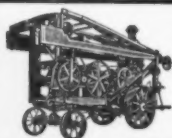
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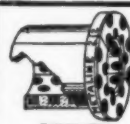
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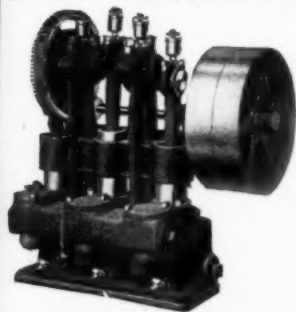
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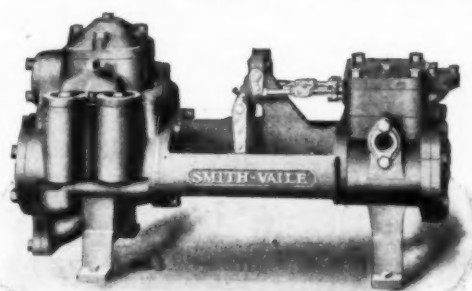
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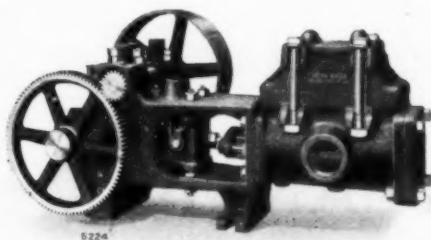
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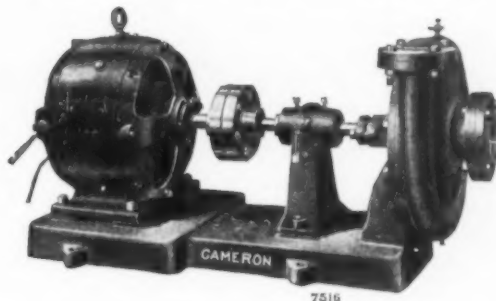
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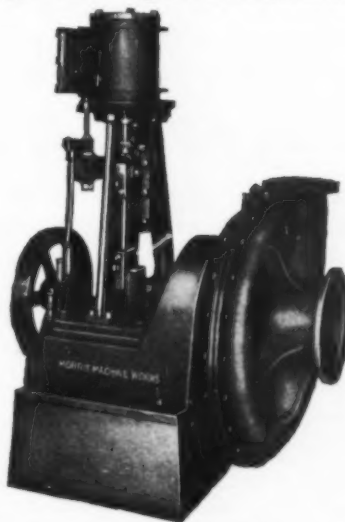
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One Thousand Acres of Land on Central of Georgia Railway near East Point, suburb of Atlanta. Will subdivide to suit purchaser.

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Complete Service to Shippers

A Factor of Decided Importance in Selecting The Most Desirable Location for Industries

The trackage and equipment of the Baltimore & Ohio is thoroughly modern and ample in every respect and kept so—the aim being to provide every facility for prompt handling of freight.

In addition large terminals are maintained in important centers such as New York, Philadelphia, Baltimore, Washington, Wheeling, Pittsburgh, Cleveland, Cincinnati, Chicago, Louisville and St. Louis.

Numerous assembling yards for incoming and outgoing shipments are also available at necessary points.

As a result of the great attention paid to this important branch of its service an industry located on the Baltimore & Ohio enjoys unexcelled facilities for the handling and shipping of products by one line direct to the largest distributing centers.

Combined with this most important advantage, the wide expanse of the Baltimore & Ohio territory, extending from the Atlantic Seaboard to the Mississippi River and Great Lakes, which, on account of its diversified resources, contains sites for manufacturing that will meet your every requirement.

Through its Industrial Department the Baltimore & Ohio would like to confer with you in the selection of a location for your new industry.

Baltimore & Ohio Railroad

W. W. WOOD, General Industrial Agent

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Where to Build Your Factory

The advance of manufacturing in the South in the last two decades has furnished one of the most interesting pages in the history of the country's industrial development. A very large proportion of the factories, mills, mines and quarries which make up the South's industries are reached by the Southern Railway Lines, for their territory is in those districts of the South where all the favorable conditions for industries of the widest variety are preeminent. It is in these districts where the great industrial advancement will continue. They have the raw materials, the best of labor conditions, the transportation facilities, the low cost of power, the easiest command of markets, the encouragement of communities already familiar with the benefits coming from industrial development and filled with the desire to give them the best support.

The industrial agents of the Southern Railway, Mobile & Ohio Railroad, Georgia Southern & Florida Railway, Virginia & Southwestern Railway and Associated Lines will aid manufacturers in their investigations and in securing the locations for successful operation of plants.

M. V. RICHARDS, Industrial and Agricultural Commissioner,
Room 52, Southern Railway, Washington, D. C.



Here Is Presented The Claim of Henderson, N. C.

In view of the fact that the cotton mills of Henderson have prospered and paid large dividends for the last ten years, it is but natural that they should believe that other mills would prosper here, and doubtless such conclusion is correct. Great quantities of box material are shipped into Henderson daily that their product may be cased and sent away, and they feel that a box factory could prosper.

In view of the fact that great quantities of yarn are to be had at this point, they feel that a knitting mill would succeed; and Henderson being the largest ring spun manufacturing center in America, and having many mill employes, they feel that an over-all plant is needed to supply the home demand, and a plant to supply mattresses; but with all of these openings they point to another as the best opportunity offered.

It is shown by these people that 40,000 bales of cotton are manufactured into yarns annually and that this material has to be wound on cones, which are purchased from other sections.

The fact that a cone mill established in Henderson could utilize the waste from the large bagging mills in making the material for their cones is one advantage, and the fact that this waste material now costs the bagging mills \$50 a month to remove leads them to believe that raw material would be no item of cost in the manufacturing process.

This railroad will take great pleasure in verifying the claims of Henderson, and to any inquirer interested we can assert that the attitude of the people of the county is favorable, and that the class of labor is desirable, that taxes are low, health conditions excellent, water the best, the climate is most favorable, and that sites can be procured upon the most favorable conditions by those really in earnest.

Seaboard Air Line Railway Company

*"The Progressive
Railway of the South."*

*In connection with this,
please address
B. L. HAMNER,
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Based Upon Its Resources There Should Be 10,000,000 HEAD OF LIVE STOCK GROWING IN FLORIDA

And there are not less than 30,000,000 acres of land that can be used to a greater or less extent for forage production or grazing purposes for live stock.

These facts have been given by W. A. McRae, Commissioner of Agriculture in Florida, and are the result of a full knowledge of the advantages of the State for stock raising and dairy farming.

In summing up these advantages, Mr. McRae emphasizes the following points which will convincingly appeal to cattle raisers in every part of the country:

Florida has an unlimited and unfailing supply of water, which is absolutely essential in any section to the successful production of live stock.

In Florida only a short feeding and sheltering period is necessary, as compared with other States.

Florida soils are adaptable to the production of all kinds of forage crops, and at less cost of production than elsewhere.

These facts show that Florida has within its boundaries the greatest cattle-raising region east of the Mississippi River, and practically an unlimited capacity to produce forage crops to supply the live stock that could be grown upon it.

Any stock raiser who will investigate the complete advantages of Florida for this business will realize that this State offers an opportunity for profit not surpassed by any other cattle-raising section in the country.

Further authentic data and information on this subject are contained in our recently issued pamphlet, "Live Stock Farming in Florida." A copy will be gladly sent those interested.

FLORIDA EAST COAST RAILWAY

(FLAGLER SYSTEM)

J. E. INGRAHAM, Vice-President

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The European War, by greatly diminishing the supply of many chemical products needed by industries of America, emphasizes the importance of raw materials along the Clinchfield for varied chemical plants, and the

Splendid Openings for Chemical and Mineral Industries

Nature has been lavish along the line of this railway, and the wide distribution and superior quality of the minerals in the Clinchfield territory give promise of ample returns to those who will develop and fabricate these products for the use of man.

Their value to the arts and manufactures can be easily established and their application in many industries awaits the progressive factor who recognizes the future supremacy that is rapidly coming to the industrial South.

The Clinchfield territory contains the following minerals which can be developed profitably:

Kaolin	Talc	Slate	Limestone
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Barytes	Coal	Chromite	Manganese
Bauxite	Lead	Dolomite	Soda Feldspar
Tripoli	Ochre	Monazite	Potash Feldspar

Some of these may be suitable to your industry.

Perhaps you are seeking a better and cheaper source of some of the above materials, raw or prepared.

Or an expansion of your present business by establishing a plant in the South.

Or a location for a new industry which gives promise of a large and progressive market.

Excellent transportation facilities, ideal climate and good labor conditions, abundance of raw materials, cheap fuel, water-powers and low freight rates combine to present the attractive advantages offered in the Clinchfield territory.

Manufacturers and investors will be given every opportunity and assistance in the investigation of the mineral resources along this railroad.

Carolina, Clinchfield & Ohio Rwy.

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R. F. BREWER, Industrial Agent

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Pipe Railing Const. Co., Long Island City, N. Y.

Barges. (Steel.)
American Bridge Co., New York, N. Y.

Bar Iron. (Refined and Galvanized.)
Jernegie Steel Co., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.

Bars. (Steel, Rounds, Flats and Squares.)
Gulf States Steel Co., Birmingham, Ala.

Bars, Wire, Wire Fabric, etc. (For Reinforced Concrete.)
Cincinnati Iron & Steel Co., Cincinnati, O.
Corrugated Bar Co., Buffalo, N. Y.
Hoffman & Co., R. O., Inc., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Laclede Steel Co., St. Louis, Mo.
Trussed Concrete Steel Co., Youngstown, Ohio.

Bearing. (Graphite and Bronze.)
Bound Brook Oil-less Bearing Co., Bound Brook, N. J.

Bearings. (Oilless.)
Bound Brook Oil-less Bearing Co., Bound Brook, N. J.
Metalline Co., Long Island City, N. Y.

Belt.
LEATHER, CANVAS, RUBBER.
American Supply Co., Providence, R. I.
Bailey-Lebby Co., Charleston, S. C.
Baltimore Belting Co., Baltimore, Md.
Cameron & Barker Co., Charleston, S. C.
Chesapeake Belting Co., Baltimore, Md.
Druid Oak Belting Co., Inc., Baltimore, Md.
Goodrich Co., B. F., Akron, Ohio.
Graton & Knight Mfg. Co., Worcester, Mass.
Main Belting Co., Philadelphia, Pa.
New Jersey Car Spring & Rubber Co., Jersey City, N. J.
Schieren Co., Chas. A., New York, N. Y.
Smith-Courtney Co., Richmond, Va.

Belt Cement.
Graton & Knight Mfg. Co., Worcester, Mass.

Belt Conveyors.
Jeffrey Mfg. Co., Columbus, O.
Robins Conveying Belt Co., New York, N. Y.

Belt Dressing.
Dixon Crucible Co., Joseph, Jersey City, N. J.
Gandy Belting Co., Baltimore, Md.
Graton & Knight Mfg. Co., Worcester, Mass.
West Texas Products Co., San Antonio, Tex.

Belt Lacing. (Leather.)
Graton & Knight Mfg. Co., Worcester, Mass.

Belt Lacing and Supplies. [See Belting, Leather, Canvas, Rubber.]

Berths and Bunks. (For Ships.)
Southern-Rome Co., Baltimore, Md.

Bicarbonate Soda. (Sap Stain Lumber Dip.)
Church & Dwight Co., New York, N. Y.

Billets. (Basic Open Hearth Quality.)
Atlantic Steel Co., Atlanta, Ga.
Gulf States Steel Co., Birmingham, Ala.

Blackboards. (Slates.)
East Bangor Con. Slate Co., The, East Bangor, Pa.
Johnson, E. J., New York, N. Y.

Blocks. (Paving Cressed.)
American Cressote Works, New Orleans, La.

Block Fillers.
Barber Asphalt Paving Co., Philadelphia, Pa.
Barrett Co., New York, N. Y.
U. S. Asphalt Refining Co., New York, N. Y.

Blowers and Exhaust Fans.
Buffalo Forge Co., Buffalo, N. Y.
General Electric Co., Schenectady, N. Y.
Green Fuel Economizer Co., Mattawan, N. Y.
Raymond Bros. Impact Fu. Co., Chicago, Ill.
Sturtevant Co., E. F., Hyde Park, Boston, Mass.

Blow Pipes.
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.

Blue Prints.
Electric Blue Print & Supply Co., Louisville, Ky.

Boilers.
Abendroth & Root Mfg. Co., Newburgh, N. Y.
Babcock & Wilcox Co., New York, N. Y.
Cameron & Barker Co., Charleston, S. C.
Casey-Hedger Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago House Wrecking Co., Chicago, Ill.
Cotseville Boiler Works, Cotesville, Pa.
Hartley Boiler Works, Montgomery, Ala.
Keeler Co., E., Williamsport, Pa.
Lombard Iron Works, Augusta, Ga.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
Mecklenburg Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Schofield Iron Works, Macon, Ga.
Southern Boiler & Tank Wks., Memphis, Tenn.
Vaik & Murdoch Co., Charleston, S. C.
Vogt Machine Co., Inc., Henry, Louisville, Ky.
Walsh & Weidner Boiler Co., Chattanooga, Tenn.
Zelnicke Supply Co., Walter A., St. Louis, Mo.

Boiler Graphtite.
Dixon Crucible Co., Joseph, Jersey City, N. J.

Boiler Tubes. [See Tubes, Boiler.]

Bolts, Nuts, Rivets, Studs and Washers.
Progressive Mfg. Co., Torrington, Conn.
Republic Iron & Steel Co., Youngstown, O.

Bond Buyers.
Baker, Watts & Co., Baltimore, Md.
Cummings, Prudden & Co., Toledo, O.
Halsey & Co., N. W., New York, N. Y.
Mercantile Trust & Deposit Co., Baltimore, Md.
National City Bank, Memphis, Tenn.
New First National Bank, The, Columbus, O.
Nuveen & Co., John, Chicago, Ill.
Powell, Garard & Co., Chicago, Ill.
Provident Savings Bank & Trust Co., Cincinnati, O.
Ridenour Co., Hugh, Columbus, Ohio.
Seasongood & Mayer, Cincinnati, Ohio.
Sidney Spitzer & Co., Toledo, O.
Stacy & Braun, Toledo, O.
Tillotson & Wolcott Co., Cleveland, O.

Bonds. (Surety, etc.)
Fidelity & Deposit Co. of Balt., Baltimore, Md.

Bottling Outfits.
Viter Mfg. Co., Milwaukee, Wis.

Brass Goods.
Bailey-Lebby Co., Charleston, S. C.
Buckeye Iron & Brass Works, Dayton, O.
Lunkenheimer Co., The, Cincinnati, O.

Brass Railing and Grilles.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Newman Mfg. Co., Cincinnati, O.

Brewers' Machinery.
Viter Mfg. Co., Milwaukee, Wis.

Brick.
ACID.
Hood Brick Co., B. Miffin, Atlanta, Ga.
COMMON.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.
Georgia-Carolina Brick Co., Augusta, Ga.
Key-James Brick Co., Chattanooga, Tenn.
Kingsport Brick Corp., Kingsport, Tenn.

ENAMELED.
A. N. Enamelled Brick & Tile Co., New York, N. Y.

FACE.
Am. Enamelled Brick & Tile Co., New York, N. Y.
Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.

Georgia-Carolina Brick Co., Augusta, Ga.
Hood Brick Co., B. Miffin, Atlanta, Ga.
Hydraulic Press Brick Co., St. Louis, Mo.
Key-James Brick Co., Chattanooga, Tenn.
Kingsport Brick Corp., Kingsport, Tenn.
Sibley Brick Co., Birmingham, Ala.
Standard Brick Co., Macon, Ga.
West Virginia Clay Products Co., Charleston, W. Va.

Brookhaven Pressed Brick & Mfg. Co., Brookhaven, Miss.

Louisville Fire Brick Wks., Highland Park, Ky.
Pomona Terra-Cotta Co., Pomona, N. O.
Standard Brick Co., Macon, Ga.
Union Mining Co., Mt. Savage, Md.

PAVING.
Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingalls Shale Brick Co., Birmingham, Ala.
Dunn Wire-Out Lug Brick Co., Conneaut, O.
Georgia-Carolina Brick Co., Augusta, Ga.
Southern Clay Mfg. Co., Chattanooga, Tenn.
Southern Paving Brick Mfg. Assn., Birmingham, Ala.
Standard Brick Co., Macon, Ga.
Westport Paving Brick Co., Baltimore, Md.

Brick and Clayworking Machinery and Supplies.
Chase Fdry. & Mfg. Co., Columbus, O.
Fernald Brick Machinery Co., St. Louis, Mo.
Freese & Co., E. M., Galion, O.
Steele & Sons, J. C., Statesville, N. C.

Bridges.
CONCRETE.
Concrete Steel Bridge Co., The, Clarksburg, W. Va.
Hackdorn Contracting Co., Indianapolis, Ind.
Luten, Daniel H., Indianapolis, Ind.

ROLLING LIFT.
Scherzer Rolling Lift Bridge Co., Chicago, Ill.

STEEL.
American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Case Crane & Engineering Co., Columbus, Ohio.
Champion Bridge Co., Wilmington, Ohio.
Chesapeake Iron Works, Baltimore, Md.
Richmond Structural Steel Co., Richmond, Va.
Scherzer Rolling Lift Bridge Co., Chicago, Ill.
Vincennes Bridge Co., Vincennes, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.

SUSPENSION.
Roebbling's Sons Co., John A., Trenton, N. J.

Bridge and Structural Iron Paints.
Chattanooga Paint Co., Chattanooga, Tenn.
O'Connor-Schweers Paint Co., Augusta, Ga.

Brimstone.
Union Sulphur Co., New York, N. Y.

Brushes. (Motor and Generator.)
Calebaugh Self-Lubricating Carbon Co., Philadelphia, Pa.

Buckets.
CLAM SHELL.
Hayward Company, New York, N. Y.
Owen Bucket Co., The, Cleveland, O.

DREDGING, EXCAVATING, SEWER, ETC.
Hayward Co., New York, N. Y.
Monaghan Mch. Co., Chicago, Ill.
Owen Bucket Co., The, Cleveland, O.

GRAB.
Hunt Co., Inc., O. W., West New Brighton, N. Y.

ORANGE PEEL.
Hayward Company, The, New York, N. Y.

ORE HANDLING.
Caldwell & Son Co., H. W., Chicago, Ill.
Hayward Co., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.

BUHR STONES.
Starr Co., B. F., Baltimore, Md.

Builders and Contractors.
Stone & Webster Eng. Corp., Boston, Mass.
White Companies, J. G., New York, N. Y.

Building Castings.
U. S. Cast Iron Pipe & Foundry Co., Burlington, N. J.

Building Supplies.
Chicago House Wrecking Co., Chicago, Ill.
Southern Building Material Co., Norfolk, Va.

Bunks. (For Contractors.)
Southern-Rome Co., Baltimore, Md.

Burners. (Enclosed Flame Gas.)
The Oren Equipment & Mfg. Co., New Haven, Conn.

Bushings. (Graphite, Bronze and Wood.)
Bound Brook Oil-less Bearing Co., Bound Brook, N. J.

Bushings. (Oilless.)
Bound Brook Oil-less Bearing Co., Bound Brook, N. J.

Metalline Co., Long Island City, N. Y.

Cables. (Copper Wire, etc.)
Broderick & Bascom Rope Co., St. Louis, Mo.

Cables and Wires. (Electric.)
American Steel & Wire Co., Chicago, Ill.
Roebbling's Sons Co., John A., Trenton, N. J.

Cableways. (Overhead, Suspension.)
Amburn Co., (Tramway Department), New York, N. Y.

Broderick & Bascom Rope Co., St. Louis, Mo.
Flory Mfg. Co., S., Bangor, Pa.
Lidgerwood Mfg. Co., New York, N. Y.
Roebbling's Sons Co., John A., Trenton, N. J.

Can and Box Making Machinery. (Tin.)
Ams Machine Co., Brook Bridgeport, Conn.
Bliss Co., E. W., Brooklyn, N. Y.

Canning Machinery and Supplies.
Robins & Co., A. K., Baltimore, Md.
Sprague Canning Machinery Co., Chicago, Ill.

Capital Furnished. (New Industrial Building Operations, Etc.)
Bready-Sweaver Co., Baltimore, Md.

Carbon Brushes. (Graphite, Metal and Self-Lubricating.)
Calebaugh Self-Lubricating Carbon Co., Philadelphia, Pa.

Carborundum Paper and Cloth.
Carborundum Co., Niagara Falls, N. Y.

Cars. (Dump, Industrial, Logging and Mine.)
Austin Mfg. Co., Chicago, Ill.
Chase Fdry. & Mfg. Co., Columbus, O.
Electric Wheel Co., Mfrs., Quincy, Ill.
Georgia Car & Locomotive Co., Atlanta, Ga.
Hunt Co., O. W., Inc., West New Brighton, N. Y.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Western Wheeled Scraper Co., Aurora, Ill.

Cars. (Passenger and Freight.) [See Railroad Equipment and Supplies.]

Car Unloaders.
Bonney Supply Co., Rochester, N. Y.

Car Wheels, Axles and Trucks.
Carnegie Steel Co., Pittsburgh, Pa.
Oliver Mfg. Co., Wm. J., Knoxville, Tenn.

Cash Registers.
National Cash Register Co., Dayton, Ohio.

Cast Iron Pipe. (See Pipe.) [Cast Iron.]

Castings.
ALUMINUM.
Aluminum Company of America, Pittsburgh, Pa.
James River Fdry. & Mch. Co., Lynchburg, Va.

BRASS AND BRONZE.
James River Fdry. & Mch. Co., Lynchburg, Va.
McKenna Bros. Brass Co., Pittsburgh, Pa.
Triumph Electric Co., Cincinnati, O.

GRAY IRON.
Columbian Iron Works, Chattanooga, Tenn.
Georgia Car & Locomotive Co., Atlanta, Ga.
Glasgow Pipe & Foundry Co., Lynchburg, Va.
Hull's Sons, D. F., Hagerstown, Md.
James River Fdry. & Mch. Co., Lynchburg, Va.
U. S. Cast Iron Pipe & Foundry Co., Burlington, N. J.
Walk & Murdoch Co., Charleston, S. C.
Westbrook Elevator Co., Danville, Va.
Whitehurst Mfg. Corp., R. W., Norfolk, Va.

MALLEABLE IRON AND STEEL.
Columbus Malleable Iron Co., Columbus, Ohio.
General Malleable Co., Warren, O.
Missouri Malleable Iron Co., East St. Louis, Ill.

STEEL.
Crucible Steel Castings Co., Lansdowne, Pa.
Hoffman & Co., Inc., R. C., Baltimore, Md.
Riverside Steel Casting Co., Newark, N. J.

Ceilings. (Metal.)
Berger Mfg. Co., Canton, Ohio.
Edwards Manufacturing Co., Cincinnati, O.
Keighley Metal Coil & Mfg. Co., S., Pittsburgh, Pa.

Cement.
Olinchfield Portland Cem. Corp., Kingsport, Tenn.
Dixie Portland Cement Co., Chattanooga, Tenn.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Kosmos Portland Cement Co., Inc., Louisville, Ky.
Lehigh Portland Cement Co., Allentown, Pa.
Southern States Portland Cem. Co., Rockmart, Ga.
Standard Portland Cement Co., Birmingham, Ala.
Virginia Portland Cement Co., Allentown, Pa.

Cement Machinery.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Power & Mining Machinery Co., Oudahy, Wis.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.

Chain Blocks.
Ford Chain Block & Mfg. Co., Philadelphia, Pa.

Chains.
DREDGE, QUARRY, STEAM SHOVEL.
Weimer Chain & Iron Co., Lebanon, Pa.

SPROCKET.
Union Chain & Mfg. Co., The, Seville, O.

Channellers.
Ingersoll-Rand Co., New York, N. Y.

Chemical Apparatus.
Klink, H. G., Baltimore, Md.

Chemists. (Analytical and Consulting.)
Davis Geo. C., Philadelphia, Pa.
Froehling & Robertson, Richmond, Va.
Gray, T. T., Elizabeth, N. J.
Hunt & Co., Robt. W., Chicago, Ill.
Little Inc., A. D., Boston, Mass.
Meade, Richard H., Baltimore, Md.
Picard Law Co., The, Atlanta, Ga.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
Shilstone, Herbert M., New Orleans, La.
Wiley & Co., Baltimore, Md.

Chloride Accumulator.
Electric Storage Battery Co., The, Philadelphia, Pa.

Cities and Towns. (Commercial and Industrial Opportunities.) [See Industrial, Agricultural and Commercial Opportunities.]

Clayworking Machinery. [See Brick and Clayworking Mch. and Supplies.]

Cleaning Apparatus. (Vacuum.)
United Electric Co., The, Canton, Ohio.

Cleansing Compound. (Floors, Etc.)
India Alkali Works, Boston, Mass.

Clocks. (Watchman's Portable.)
Harding Bros., Inc., Chicago, Ill.
Kaiser, Louis E., Baltimore, Md.

Clutches. (Friction.)
Medart Patent Pulley Co., St. Louis, Mo.
Moore & White Co., The, Philadelphia, Pa.

Coal.
Olinchfield Coal Corp., Spartanburg, S. C.
Olinchfield Fuel Co., Spartanburg, S. C.
Consolidation Coal Co., Inc., New York, N. Y.
Raleigh-Pocahontas Coal Co., Norfolk, Va.
Southern Coal & Coke Co., Knoxville, Tenn.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.

Coal Cutters.
Jeffrey Mfg. Co., Columbus, O.

Coal Handling Machinery.
Hartlett & Snow Co., C. O., Cleveland, O.
Guarantee Construction Co., New York, N. Y.
Hayward Co., New York, N. Y.
Hunt Co., C. W. Inc., West New Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Link Belt Co., Philadelphia, Pa.
Robins Conveying Belt Co., New York, N. Y.
Weimer Mfg. Co., Chicago, Ill.

Coal Tar and By-Products.
Barrett Co., New York, N. Y.

Coal Tipples.
American Bridge Co., New York, N. Y.

Coke.
Bourne-Fuller Co., The, Cleveland, O.
Hammond-Burd Iron Co., Birmingham, Ala.
Southern Coal & Coke Co., Knoxville, Tenn.
Tennessee Coal, Iron & R. R. Co., B'gh'm, Ala.

Cold Store Doors.
Brecht Co., The, St. Louis, Mo.

Colleges. (For Girls.)
Converse College, Spartanburg, S. C.
Gwyn School, The, Spartanburg, S. C.

Colleges. (Technical.)
Rensselaer Polytechnic Institute, Troy, N. Y.
Va. Polytechnic Institute, Blacksburg, Va.

Columns. (Cast Iron.)
U. S. Cast Iron Pipe & Foundry Co., Burlington, N. J.

Concrete. (Architectural.)
Bidd & Concre Co., Clarksburg, W. Va.

Concrete Bridges.
Hackdorn Contracting Co., Indianapolis, Ind.

Concrete Reinforcing Wire and Wire Fabric
American Steel Wire Co., Chicago, Ill.
Consolidated E. and Metal Co., Braddock, Pa.

Condensers.
Albergo Pump & Condenser Co., New York, N. Y.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Crescent-Morris Co., Philadelphia, Pa.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Conductor Pipe.
Edwards Mfg. Co., Cincinnati, O.
Conduits. (Electrical, Interior, Steel.)
National Metal Molding Co., Pittsburgh, Pa.
Conduit Fittings.
National Metal Molding Co., Pittsburgh, Pa.

Contractors
DRAINAGE.
Atlantic, Gulf and Pacific Co., New York, N. Y.
Globe Dredging Co., Savannah, Ga.

DREDGING.
Atlantic, Gulf and Pacific Co., New York, N. Y.
Globe Dredging Co., Savannah, Ga.

GENERAL.
Cornell-Young Co., Spartanburg, S. C.
Terry & Trench Co., Inc., New York, N. Y.

MILLWRIGHT.
Lord & Sons, F. A., Petersburg, Va.
RAILROAD.
Cornell-Young Co., Spartanburg, S. C.

REINFORCED CONCRETE.
Concrete Steel Bridge Co., The, Clarkburg, W. Va.
Lane & Co., Inc., O. W., Atlanta, Ga.
Preston-Small Const. Co., Macon, Ga.

ROAD AND STREET PAVING.
Lane & Co., Inc., O. W., Atlanta, Ga.
McCrory Co., J. B., Atlanta, Ga.
Preston-Small Const. Co., Macon, Ga.

SEWER AND WATER WORKS.
Lane & Co., Inc., O. W., Atlanta, Ga.
McCrory Co., J. B., Atlanta, Ga.

WATER SUPPLY.
Layne & Bowler Co., Houston, Tex.

Contractor's Machinery and Supplies. [See also Hoisting Machinery.]
American Clay Mfg. Co., The, Bucyrus, O.
Austin Mfg. Co., Chicago, Ill.

Byers Mach. Co., The, John F., Ravenna, O.
Contractors' Mach. & Supply Co., Pittsburgh, Pa.
Contractors Service Co., New York, N. Y.

Flory Mfg. Co., S., Bangor, Pa.
Gardner Inc., James T., Chicago, Ill.
Granville Supply Co., St. Louis, Mo.

Hoisting Engine Sales Co., New York, N. Y.
Ideal Concrete Machinery Co., Cincinnati, Ohio.
Ingelsoll-Rand Co., New York, N. Y.

Jacobs Machine Co., The, Columbus, O.
Jordan Bros., Norfolk, Va.
Marine Metal & Supply Co., New York, N. Y.

Miller Supply Co., The, Huntington, W. Va.
Monaghan Mch. Co., Chicago, Ill.
Morrison, Hockley, Richmond, Va.

Oliver Mfg. Co., Wm. J., Knoxville, Tenn.
Pipe and Contractors Supply Co., New York, N. Y.
Price & Pratt, Norfolk, Va.

Sherwood, E. O., New York, N. Y.
Standard Scale and Supply Co., Pittsburgh, Pa.
Tillery Iron Co., J. F., Knoxville, Tenn.

Conveying and Elevating Machinery.
Amburnson Co., (Tramway Department), New York, N. Y.

Bartlett & Snow Co., O. O., Cleveland, O.
Caldwell & Son Co., H. W., Chicago, Ill.
Flory Mfg. Co., S., Bangor, Pa.

Guarantee Const. Co., New York, N. Y.
Hunt Co., O. W., Inc., West New Brighton, N. Y.
Jeffrey Mfg. Co., Columbus, O.

Lidgerwood Mfg. Co., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.
Main Belting Co., Philadelphia, Pa.

Mathews Gravity Carrier Co., Elwood City, Pa.
McLanahan-Stone Mch. Co., Hollidaysburg, Pa.
Robins Conveying Belt Co., New York, N. Y.

Union Chain & Mfg. Co., The, Seville, O.
Weller Mfg. Co., Chicago, Ill.

Cooling Ponds.
Spray Engineering Co., Boston, Mass.

Coppersmiths.
Ahlers & Gregoire, Louisville, Ky.
Hoffman-Ahlers Co., Cincinnati, Ohio.

McMillan Bros., Jacksonville, Fla.
Cordage.
Broderick & Bascom Rope Co., St. Louis, Mo.

Columbian Rope Co., Auburn, N. Y.
Waterbury Co., New York, N. Y.

Corner Bead. (Metal).
Penn Metal Co., Boston, Mass.

Corn-Mill Machinery.
Raymond Bros. Impact, Peiv. Co., Chicago, Ill.
Starr Co., B. F., Baltimore, Md.

Wolf Co., Chambersburg, Pa.
Cotton Oil and Products.
American Cotton Oil Co., New York, N. Y.

Cotton Duck.
Turner-Halsey Co., New York, N. Y.

Cotton Yarns. (Commission Merchants.)
Paulson, Linkroom & Co., New York, N. Y.

Cotton-Gin Machinery.
Continental Gin Co., Birmingham, Ala.
Murray Co., The, Atlanta, Ga.

Cotton-Mill Machinery.
Orampton & Knowles Loom Wks., Worcester, Mass.
Draper Co., Hopedale, Mass.

Saco-Lowell Shop, Boston, Mass.
Whitinsville Spin'g Ring Co., Whitinsville, Mass.

Cotton-Mill Supplies.
American Supply Co., Providence, R. I.

Orampton & Knowles Loom Wks., Worcester, Mass.
Whitinsville Spin'g Ring Co., Whitinsville, Mass.

Cottonseed-Oil Machinery.
Buckeye Iron & Brass Wks., Dayton, O.

Farriss Engineering Co., Atlanta, Ga.
Cordwell Machine Co., Richmond, Va.
Continental Gin Co., Birmingham, Ala.

French Oil Mill Mch. Co., Piqua, O.
Murray Co., The, Atlanta, Ga.
Platt Iron Works, Dayton, O.

Raymond Bros. Impact Peiv. Co., Chicago, Ill.
Couplings.
American Spiral Pipe Wks., Chicago, Ill.

Automatic Shaft-Coupling Co., Alexandria, Va.
Campbell Mch. Co., New York, N. Y.
Goldens' Fdry. & Mch. Co., Columbus, Ga.

Wood's Sons Co., T. B., Chambersburg, Pa.
Couplings. (Car.)
Weimer Chain & Iron Co., Lebanon, Pa.

Coverings. (Pipe, Rollers, etc.)
Baltimore Roofing & Asbestos Mfg. Co., Asbestos, Md.

Johns-Manville Co., H. W., New York, N. Y.
Southern Asbestos Mfg. Co., Inc., Richmond, Va.
Wyckoff & Son Co., A., Elmira, N. Y.

Cranes. (Traveling, Hand, Power, Hydraulic.)
Case Crane & Engineering Co., Columbus, O.

Niles-Bement-Pond Co., New York, N. Y.
Speidel, J. G., Reading, Pa.

Crossing Equipment.
Case-Hedges Co., Chattanooga, Tenn.

Struthers-Wells Co., Warren, Pa.
Walsh & Weidner Boiler Co., Chattanooga, Tenn.

Crossing Materials.
Barrett Co., New York, N. Y.
Republic Crossing Co., Indianapolis, Ind.

Reeves Co., The, New Orleans, La.
Crossarms and Pins.
Western Electric Co., New York, N. Y.

Cross Arm Machinery.
Chattanooga Mch. Co., Chattanooga, Tenn.

Crossarms. (Crescoted.)
American Crescote Wks., New Orleans, La.

Internat'l Cresc. & Cons. Co., Galveston, Tex.
Southern Crossing Co., Ltd., Slidell, La.
Southern Paving Const. Co., Chattanooga, Tenn.

Southern Wood Preserving Co., Atlanta, Ga.
Crossings. [See Railroad Frogs and Switches.]

Crossities. (Crescoted.)
American Crescote Wks., New Orleans, La.

Internat'l Cresc. & Cons. Co., Galveston, Tex.
Southern Crossing Co., Ltd., Slidell, La.
Southern Paving Const. Co., Chattanooga, Tenn.

Southern Wood Preserving Co., Atlanta, Ga.
Crossities. (Crescoted.)
Carnegie Steel Co., Pittsburgh, Pa.

Crushed Stone. (Road Concrete and Ballast.)
American Ballast Co., Knoxville, Tenn.

Chickamauga Quarry & Construction Co., Chattanooga, Tenn.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.

Preston-Small Const. Co., Macon, Ga.
Watson & Brooker Co., Columbia, S. C.

Crushers.
CORN AND COB.
Grundler P. Crusher & Pulv. Co., St. Louis, Mo.

Jeffrey Mfg. Co., Columbus, O.
Raymond Bros. Impact Peiv. Co., Chicago, Ill.

Rock.
Austin Mfg. Co., Chicago, Ill.

Buchanan Co., Inc., C. G., New York, N. Y.
Lehigh Car. Wheel and Axle Wks., Catsaugua, Pa.

Power & Mining Machinery Co., Cudary, Wis.
Raymond Bros. Impact Peiv. Co., Chicago, Ill.

Universal Road Mch. Co., Kingston, N. Y.
Western Wheel Scraper Co., Aurora, Ill.

Crushing and Pulverizing Machinery.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.

Austin Mfg. Co., Chicago, Ill.
Bartlett & Snow Co., O. O., Cleveland, O.

Buchanan Co., Inc., C. G., New York, N. Y.
Grundler P. Crusher & Pulv. Co., St. Louis, Mo.

Jeffrey Mfg. Co., Columbus, O.
K-B Pulverizer Co., Inc., New York, N. Y.

Lehigh Car. Wheel and Axle Wks., Catsaugua, Pa.
McLanahan-Stone Mch. Co., Hollidaysburg, Pa.

Raymond Bros. Impact Peiv. Co., Chicago, Ill.
Stedman's Foundry & Machine Works, Aurora, Ind.

Western Wheel Scraper Co., Aurora, Ill.
Culvert Pipe. (Cast Iron.)
American Cast Iron Pipe Co., Birmingham, Ala.

American Casting Co., Birmingham, Ala.
American Pipe & Const. Co., Philadelphia, Pa.

Clow & Sons, J. B., Chicago, Ill.
Donaldson Iron Co., Evans, Pa.

Gammorgan Pipe & Foundry Co., Lynchburg, Va.
Hammond-Bird Iron Co., Birmingham, Ala.

Lynchburg Foundry Co., Lynchburg, Va.
Massillon Iron & Steel Co., Massillon, Ohio.

Standard Cast Iron Pipe & Fdry. Co., Bristol, Pa.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.

Wood & Co., R. D., Philadelphia, Pa.
Culverts. (Corrugated Metal.)
American Sheet & Tin Plate Co., Pittsburgh, Pa.

Armco Iron Culvert Mfrs. Assn., Cincinnati, Ohio.
Atlas Metal Works, Lima, Tenn.

Canton Culvert and Silt Co., The, Canton, O.
Dixie Culvert & Metal Co., Atlanta, Ga.

National Corrugated Culvert Mfg. Co., Warren, Pa.
Newport Culvert Co., Inc., Newport, Ky.

Tennessee Metal Culvert Co., Nashville, Tenn.
Culverts. (Vitrified Pipe.)
Southern Sewer Pipe Co., Birmingham, Ala.

Curb Protector. (Steel.)
Trussed Concrete Steel Co., Youngstown, Ohio.

Cutter Grinders.
Vitrified Wheel Co., Westfield, Mass.

Cutting. (Oxy-Acetylene Process.)
Frost-O-Lite Co., Inc., The, Indianapolis, Ind.

Cuts. (Half Tons, Line, Etc.)
Alpha Photo Engraving Co., Balto., Md.

Derricks and Derrick Fittings.
Byers Mach. Co., The, John F., Ravenna, O.

Hayward Co., The, New York, N. Y.
Monaghan Machine Co., Chicago, Ill.

Osmond Co., The, Marion, Ohio.
Sauerman Bros., Chicago, Ill.

The Automatic Shovel Co., Lorain, Ohio.
Dock Pile Wharves. (Reinforced Concrete.) [See Harbor Improvement.]

Doors Partition. (Metallic.)
Dahlstrom Metallic Door Co., Jamestown, N. Y.

Doors.
STEEL ROLLING.
Kinross Mfg. Co., Columbus, O.

Van Harlingen, J. M., Atlanta, Ga.
Double Seamers.
Ams Machine Co., Max, Bridgeport, Conn.

Draftsmen's Supplies.
Weber & Co., F., Philadelphia, Pa.

Dredging Contractors. [See Contractors (Dredging).]
Dredge Chains.
Weimer Chain & Iron Co., Lebanon, Pa.

Dredges. [See Excavating Machinery.]
Dredging. (River, Harbor Improvement.)
Atlantic, Gulf and Pacific Co., New York, N. Y.

Globe Dredging Co., Savannah, Ga.
Drills.
ELECTRIC.
Independent Pneumatic Tool Co., Chicago, Ill.

PROSPECTING.
Keynote Drill Co., Beaver Falls, Pa.

Ingersoll-Rand Co., New York, N. Y.
ROCK AND MINING.
Ingersoll-Rand Co., New York, N. Y.

Jeffrey Mfg. Co., Columbus, O.
Sullivan Mch. Co., Chicago, Ill.

Twist.
McKenna Bros. Brass Co., Pittsburgh, Pa.

American Spiral Pipe Works, Chicago, Ill.
Drop Forgings.
Bliss Co., E. W., Brooklyn, N. Y.

Dryers. (Sand.) [See Sand Dryers.]
Dry Docks. (Builders of)
American Bridge Co., New York, N. Y.

Drying Apparatus.
Carrier Engineering Corp., New York, N. Y.

Drying Machinery.
American Process Co., New York, N. Y.

Bailey-Lobby Co., The, Charleston, S. C.
Buffalo Forge Co., Buffalo, N. Y.

Coatesville Boiler Works, Coatesville, Pa.
Cummer & Son Co., F. D., The, Cleveland, O.

Hersey Mfg. Co., South Boston, Mass.
Ruggie-Coles Engineering Co., New York, N. Y.

Sturtevant Co., B. F., Hyde Park, Boston, Mass.
Dry Kilns.
Buffalo Forge Co., Buffalo, N. Y.

Moore Dry Kiln Co., L., Jacksonville, Fla.
Saw-Mill Const. Co., Savannah, Ga.

Dry Kiln Equipment.
Moore Dry Kiln Co., L., Jacksonville, Fla.

Dumbwaiters. (Hand Power.)
McKenna Bros. Brass Co., Pittsburgh, Pa.

Spindel, J. G., Reading, Pa.
Dump Wagons.
Henderson Wagon Wks., Inc., Henderson, Ky.

Western Wheeled Scraper Co., Aurora, Ill.
Dust-Collecting Systems.
Buffalo Forge Co., Buffalo, N. Y.

South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.
Dynamite. (Industrial and Agricultural.)
Aetna Explosives Co., Inc., New York, N. Y.

Atlas Powder Co., Wilmington, Del.
Du Pont de Nemours & Co., E. I., Wilmington, Del.

Dynamometers and Motors.
Assets Purchasing Co., Wheeling, W. Va.

General Electric Co., Schenectady, N. Y.
Pan Electric Mfg. Co., St. Louis, Mo.

Triumph Electric Co., Cincinnati, O.
Western Electric Co., New York, N. Y.

Westinghouse Elect. & Mfg. Co., East Pittsburgh, Pa.
Eaves. (Through.)
Edwards Mfg. Co., Cincinnati, O.

Ejectors. (Sewage.)
Lunkenheimer Co., The, Cincinnati, O.

Pacific Fuel Tank Co., New York, N. Y.
Electric Machinery. (Dynamometers, Generators, Motors, etc.)
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.

Comstock Electric Co., Inc., High Point, N. C.
Crocker-Wheeler Co., Amper, N. J.

Doubladay-Hill Elec. Co., Washington, D. C.
General Electric Co., Schenectady, N. Y.

Nashville Armature Works, Nashville, Tenn.
O'Brien Machine Co., Philadelphia, Pa.

Pan Electric Mfg. Co., St. Louis, Mo.
Piedmont Electric Co., Asheville, N. C.

Schneidt Co., R., Philadelphia, Pa.
Schroeder Electric Co., Evansville, Ind.

Tiffany & Co., Inc., E. H., New York City
Triumph Electric Co., Cincinnati, O.

Westinghouse Elect. & Mfg. Co., East Pittsburgh, Pa.
Wilson Mch. Co., St. Louis, Mo.

Electric Contractors, Instruments and Supplies.
Comstock Electric Co., Inc., High Point, N. C.

Crocker-Wheeler Co., Amper, N. J.
Doubladay-Hill Elec. Co., Washington, D. C.

General Electric Co., Schenectady, N. Y.
Miller-Owen Electric Co., Pittsburgh, Pa.

Nashville Armature Works, Nashville, Tenn.
Piedmont Electric Co., Asheville, N. C.

Electric Light Plants. (Portable.)
Schroeder Electric Co., Evansville, Ind.

Elevating, Conveying and Power Transmission Machinery. [See also Conveying and Elevating Machinery and Power Transmission Machinery.]

Elevators.
MATHEWS GRAVITY CARRIER CO., ELWOOD CITY, PA.

ELECTRIC.
American Elec. Mach. & Elevator Co., St. Louis, Mo.

Amer. Elevator & Mach. Co., Inc., Louisville, Ky.
Current Elevator Co., Jas. H., Cincinnati, O.

K. O. Elevator Mfg. Co., Kansas City, Mo.
Kimball Bros. Co., Iowa Bluffs, Iowa.

Moffatt Machinery Mfg. Co., Charlotte, N. C.
Ohio Elevator & Mach. Co., Columbus, O.

Otis Elevator Co., New York, N. Y.
Speidel, J. G., Reading, Pa.

Sarnaw Elevator Co., Baltimore, Md.
Westbrook Elevator Co., Danville, Va.

HAND AND BELT POWER.
American Elec. Mach. & Elev. Co., St. Louis, Mo.

Amer. Elevator & Mach. Co., Inc., Louisville, Ky.
Current Elevator Co., Jas. H., Cincinnati, O.

K. O. Elevator Mfg. Co., Kansas City, Mo.
Kimball Bros. Co., Iowa Bluffs, Iowa.

Moffatt Mch. Mfg. Co., Charlotte, N. C.
Ohio Elevator & Mach. Co., Columbus, O.

Otis Elevator Co., New York, N. Y.
Speidel, J. G., Reading, Pa.

Westbrook Elevator Co., Danville, Va.
HYDRAULIC.
American Elec. Mach. & Elev. Co., St. Louis, Mo.

Amer. Elevator & Mach. Co., Inc., Louisville, Ky.
Current Elevator Co., Jas. H., Cincinnati, O.

K. O. Elevator Mfg. Co., Kansas City, Mo.
Kimball Bros. Co., Iowa Bluffs, Iowa.

Moffatt Mch. Mfg. Co., Charlotte, N. C.
Ohio Elevator & Mach. Co., Columbus, O.

Otis Elevator Co., New York, N. Y.
Speidel, J. G., Reading, Pa.

Westbrook Elevator Co., Danville, Va.
PORTABLE FOR WAREHOUSES, ETC.
Economy Engineering Co., Chicago, Ill.

STRAM HYDRAULIC.
Kidway & Son Co., The, Coatesville, Pa.

Elevator Buckets.
Caldwell & Son Co., H. W., Chicago, Ill.

Hendrick Mfg. Co., Carbondale, Pa.
Jeffrey Mfg. Co., Columbus, O.

Link-Belt Co., Philadelphia, Pa.
Union Chain Mfg. Co., The, Seville, O.

Elevator Enclosures and Cabs.
Bolles Iron & Wire Wks., J. E., Detroit, Mich.

Chattanooga Roofing & Fdry. Co., Chattanooga, Tenn.
Dow Wire & Iron Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.

Dufur, Baggot & Co., Baltimore, Md.
Jackson Iron & Bronze Works, Jackson, Tenn.

Meyers Mfg. Co., The, Fred J., Hamilton, O.
Ohio Elevator & Mach. Co., The, Columbus, O.

Otis Elevator Co., New York, N. Y.
Elevator Rope. [See Wire Rope.]
Elevator Safety Gates.
American Elec. Mch. & Elev. Co., St. Louis, Mo.

Richmond Safety Gate Co., Richmond, Ind.
Emery Wheels. [See Grinding Wheels.]
Engineers.
APPRAISAL.
Atlantic Engineering Co., Savannah, Ga.

Day & Zimmerman, Philadelphia, Pa.
Hunt Engineering Co., Kansas City, Mo.

Meade, Richard K., Baltimore, Md.
Norton, Bird & Whitman, Baltimore, Md.

Weller, Francis R., Washington, D. C.
BLAST FURNACES.
Smythe Co., The, S. E., Pittsburgh, Pa.

BRIDGE.
Atlantic Engineering Co., Savannah, Ga.

Concrete Steel Bridge Co., The, Clarkburg, W. Va.
Freeland-Kyle Engr. Co., Nashville, Tenn.</

Engineers.

INSPECTIONS AND TESTS.
Crosby, Walter W., Baltimore, Md.
Dow & Smith, New York, N. Y.
Emory & Eisenberg, Philadelphia, Pa.
Froehling & Robertson, Richmond, Va.
Gray, T. T., Elizabeth, N. J.
Hunt & Co., Robert W., Chicago, Ill.
Institute of Industrial Research, Washington, D. C.
Meade, Richard K., Baltimore, Md.
Moore & Co., W. E., Pittsburgh, Pa.
Morse, Hall & Cockey, Baltimore, Md.
Pittsburgh Testing Laboratory, Pittsburgh, Pa.
Yates & Yates, New York, N. Y.

LANDSCAPE.
Crosby, Walter W., Baltimore, Md.
Morse, Hall & Cockey, Baltimore, Md.
Speed, Wm., Louisville, Ky.

LIGHTING.
Bylesby & Co., H. M., Chicago, Ill.
Ford, Bacon & Davis, New York, N. Y.
McCrady & Co., J. B., Atlanta, Ga.
Moore & Co., W. E., Pittsburgh, Pa.

LUMBER PLANT.
Saw-Mill Const. Co., Savannah, Ga.

MECHANICAL.
Arnold Co., The, Chicago, Ill.
Cram Engineering Co., Inc., Baltimore, Md.
Emory & Eisenberg, Philadelphia, Pa.
Graves Engineering Co., Inc., New York, N. Y.
Hunt Engineering Co., Kansas City, Mo.
Kelly, Cooke & Co., Philadelphia, Pa.
Kelly, Thos. C., Cincinnati, Ohio.
Lewis, Fred. H., Birmingham, Ala.
Lide, Martin J., Birmingham, Ala.
Meade, Richard K., Baltimore, Md.
Moore & Co., W. E., Pittsburgh, Pa.
Prouitt, F. G., Memphis, Tenn.
Stevens, Harry, Washington, D. C.
Tucker & Laxton, Charlotte, N. C.
Witherup, L. P., Cincinnati, O.

MINING.
Brown & Clarkson, Washington, D. C.
Emory & Eisenberg, Philadelphia, Pa.
Grimley, G. P., Martinsburg, W. Va.

MUNICIPAL.
Brown & Clarkson, Washington, D. C.
Crosby, Walter W., Baltimore, Md.
Dabney Engineering Co., Memphis, Tenn.
Dow & Smith, New York, N. Y.
Durham, Henry Welles, New York, N. Y.
Elrod, Henry Exall, Dallas, Texas.
Graves Engineering Co., Inc., New York, N. Y.
Havely, H. B., Morristown, Tenn.
Hutchinson, Geo. W., Roanoke, Va.
Kelly, Cooke & Co., Philadelphia, Pa.
Knowles, Morris, Pittsburgh, Pa.
McCrady Bros. & Cheves, Inc., Charleston, S. C.
McCrady Co., H. A., Atlanta, Ga.
Mead, Daniel W., New York, N. Y.
Moore & Co., W. E., Pittsburgh, Pa.
Norton, Bird & Whitman, Baltimore, Md.
Pew, Arthur, Atlanta, Ga.
Randolph & Co., Isam, Jacksonville, Fla.
Scheidtbaum, F. W., New York, N. Y.
White, Gilbert O., Charlotte, N. C.

PAVING AND ROAD.
Atlantic Engineering Co., Savannah, Ga.
Crosby, Walter W., Baltimore, Md.
Dow & Smith, New York, N. Y.
Durham, Henry Welles, New York, N. Y.
Elrod, Henry Exall, Dallas, Texas.
Fluharty, W. B., Greensboro, N. C.
Freeland-Kyle Engr. Co., Nashville, Tenn.
Havely, H. B., Morristown, Tenn.
Institute of Industrial Research, Washington, D. C.
McCrady Bros. & Cheves, Inc., Charleston, S. C.
Morse, Hall & Cockey, Baltimore, Md.
Speed, Wm., Louisville, Ky.
White, Gilbert O., Charlotte, N. C.

PETROLEUM.
Gray, T. T., Elizabeth, N. J.

PUBLIC SERVICE PROPERTIES.
Barstow & Co., W. S., New York, N. Y.
Bylesby & Co., H. M., Chicago, Ill.
Cooper & Co., Robert W., Chicago, Ill.
Cram Engineering Co., Inc., Baltimore, Md.
Day & Zimmerman, Philadelphia, Pa.
Ferree Co., The, H. G., Memphis, Tenn.
Ford, Bacon & Davis, New York, N. Y.
Graves Engineering Co., Inc., New York, N. Y.
Kelly, Cooke & Co., Philadelphia, Pa.
Mead, Daniel W., New York City.
Moore & Co., W. E., Pittsburgh, Pa.
Norton, Bird & Whitman, Baltimore, Md.
Scheidtbaum, F. W., New York, N. Y.
Scodel Engineering Co., Philadelphia, Pa.
Stone & Webster Engr. Corp., Boston, Mass.
Weller, Francis R., Washington, D. C.
White Companies, J. G., New York, N. Y.
Witham, Edwin, Richmond, Va.

RAILROAD.
Alabama Eng. Corp., Tuscaloosa, Ala.
Atlantic Engineering Co., Savannah, Ga.
Hunt & Co., Robert W., Chicago, Ill.
Randolph & Co., Isam, Jacksonville, Fla.
Speed, Wm., Louisville, Ky.
Stevens, Harry, Washington, D. C.
Witham, Edwin, Richmond, Va.

REFRIGERATING.
Jasper, M. R., Cincinnati, Ohio.
Fleming, W. H., Birmingham, Ala.
Kelly, Thos. C., Cincinnati, Ohio.

REINFORCED CONCRETE. (Bridges, Buildings, etc.)
Concrete Steel Bridge Co., The, Clarkburg, W. Va.
Elford, E., Columbus, O.
Foster & Creighton Co., Nashville, Tenn.
Freeland-Kyle Engr. Co., Nashville, Tenn.
Gardner & Howe, Memphis, Tenn.
Guarantee Construction Co., New York, N. Y.
Hutchinson, Geo. W., Roanoke, Va.
Luten, Daniel B., Portsmouth, Ohio.
Massart Henry, Baltimore, Md.
Mead, Daniel W., New York, N. Y.
Savannah Eng. & Construction Co., Savannah, Ga.
Saw-Mill Const. Co., Savannah, Ga.
Scheidtbaum, F. W., New York, N. Y.
Spiker, William C., Atlanta, Ga.
Tucker & Laxton, Charlotte, N. C.
White Companies, J. G., New York, N. Y.
Yates & Yates, New York, N. Y.

SEWERAGE AND WATER-WORKS.
Barstow & Co., W. S., New York, N. Y.
Brown & Clarkson, Washington, D. C.
Dabney Engineering Co., Memphis, Tenn.
Durham, Henry Welles, New York, N. Y.
Ford, Bacon & Davis, New York, N. Y.
Havely, H. B., Morristown, Tenn.
Knowles, Morris, Pittsburgh, Pa.
Mead, Daniel W., New York City.
Moore & Co., W. E., Pittsburgh, Pa.
Morse, Hall & Cockey, Baltimore, Md.
Myers, E. W., Greensboro, N. C.
Norton, Bird & Whitman, Baltimore, Md.
Pew, Arthur, Atlanta, Ga.
Quick, Alfred M., Baltimore, Md.
Scheidtbaum, F. W., New York, N. Y.
Speed, Wm., Louisville, Ky.
Stevens, Harry, Washington, D. C.
White Companies, J. G., New York, N. Y.
White, Gilbert O., Charlotte, N. C.
Witherup, L. P., Cincinnati, O.

STEEL WORK AND ROLLING MILLS.
Smythe Co., The, S. R., Pittsburgh, Pa.

STRUCTURAL STEEL.
Alabama Eng. Corp., Tuscaloosa, Ala.
Concrete Steel Bridge Co., The, Clarkburg, W. Va.
Foster & Creighton Co., Nashville, Tenn.
Freeland-Kyle Engr. Co., Nashville, Tenn.
Hedrick & Cochran, Kansas City, Mo.
Shearer, C. E., Memphis, Tenn.
Spiker, Wm. O., Atlanta, Ga.
Yates & Yates, New York, N. Y.

Engines.

COMPRESSED AIR.
Dake Engine Co., Grand Haven, Mich.

GAS AND GASOLINE.
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
Bruce-Macbeth Engine Co., The, Cleveland, O.
Cooper Co., G. & M., Mt. Vernon, Ohio.
De La Vergne Machine Co., New York, N. Y.
Foss Gas Engine Co., Springfield, O.
Mietz Machine Works, A., New York, N. Y.
St. Marys Oil Engine Co., St. Charles, Mo.

OIL.
Chicago Pneumatic Tool Co., Chicago, Ill.
De La Vergne Machine Co., New York, N. Y.
Foss Gas Engine Co., Springfield, O.
Mietz Machine Works, A., New York, N. Y.
Moore & Sons Corp., Samuel L., Elizabeth, N. J.
Power Mfg. Co., Lima, Ohio.
Snow Steam Pump Plant, The, New York, N. Y.
St. Marys Oil Engine Co., St. Charles, Mo.

STEAM.
Allis-Chalmers Manufacturing Co., Milwaukee, Wis.
Ball Engine Co., Erie, Pa.
Buffalo Forge Co., Buffalo, N. Y.
Cameron & Barkley Co., Charleston, S. C.
Chicago House Wrecking Co., Chicago, Ill.
Cooper Co., O. & G., Mt. Vernon, Ohio.
Erie Steam Shovel, Erie, Pa.
Griffith & Wedge Co., The, Zanesville, O.
Houston, Stanwood & Gamble Co., Cincinnati, O.
Leffel & Co., James, Springfield, O.
Lombard Iron Works, Chicago, Ill.
Mack Iron Works, Charlotte, N. C.
Murray Iron Works Co., Burlington, Ia.
Nagle Corliss Engine Wks., Erie, Pa.
Schaffeld Iron Works, Macon, Ga.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
Vilter Mfg. Co., Milwaukee, Wis.

Envelopes.
Young & Selden Co., Baltimore, Md.

Excavating Machinery.
American Climax Machine Co., The, Bucyrus, Ohio.
American Steel Dredge Co., Fort Wayne, Ind.
Ball Engine Co., Erie, Pa.
Bay City Dredge Works, Bay City, Mich.
Byers Mach. Co., The John F., Ravenna, O.
Cable Excavator Co., Phila., Pa.
Erie Steam Shovel, Erie, Pa.
Fairbanks Steam Shovel Co., Marion, Ohio.
Hayward Co., New York, N. Y.
Jeffrey Mfg. Co., Columbus, O.
Lidgerwood Mfg. Co., New York, N. Y.
Monaghan Machine Co., Chicago, Ill.
Morris Machine Works, Baldwinville, N. Y.
Osgood Co., The, Marion, Ohio.
Owen Bucket Co., The, Cleveland, O.
Sauerman Bros., Chicago, Ill.
The Automatic Shovel Co., Lorain, Ohio

Excavators.

CABLEWAY DRAGLINE.
Cable Excavator Co., Phila., Pa.
Sagerman Bros., Chicago, Ill.

TRENCH.

Ball Engine Co., Erie, Pa.

Bay City Dredge Works, Bay City, Mich.

Erie Steam Shovel, Erie, Pa.

Fairbanks Steam Shovel Co., Marion, O.

Hayward Co., The, New York, N. Y.

Monaghan Machine Co., Chicago, Ill.

Excelsior Machinery.

Kline, Lewis T., Alpena, Mich.

Exhaust Hoods.

Adams & Sons Mfg. Co., Newburgh, N. Y.

American Spiral Pipe Works, Chicago, Ill.

Exhibits. (Machinery Builders' Equipment and Supplies.)

Builders' Exchange, Baltimore, Md.

Expanded Metal Lath and Reinforcing.

Consolidated Expanded Metal Co., Braddock, Pa.

North Western Expanded Metal Co., Chicago, Ill.

Expansion Joints. (Street and Road.)

Carey Co., The, Phila., Cincinnati, O.

Pioneer Asphalt Co., Lawrence, Ill.

Explosives.

Aetna Explosives Co., Inc., New York, N. Y.

Atlas Powder Co., Wilmington, Del.

Du Pont de Nemours & Co., E. I., Wilmington, Del.

Face Brick. (See Brick.) [Building.]

Factory Sites. (Town and Railroad.) [See Industrial Agricultural and Commercial Opportunities.]

Brady-Sweater Co., Baltimore, Md.

Martien & Co., William, Baltimore, Md.

Fans. (Electric.)

General Electric Co., Schenectady, N. Y.

Fans. (Ventilating) [See Blowers, Exhaust Fans.]

Farm Loans.

Southern Mortgage Co., Atlanta, Ga.

Feed-Water Heaters and Purifiers.

American Water Softener Co., Philadelphia, Pa.

Blake & Knowles Steam Pump Works, East Cambridge, Mass.

Murray Iron Works Co., Burlington, Ia.

National Pipe Bending Co., New Haven, Conn.

Platt Iron Works, Dayton, Ohio.

Scafe & Sons Co., Wm. B., Pittsburgh, Pa.

Stewart Heater Co., Buffalo, N. Y.

Feed-Water Heater and Purifier and Oil Separator Combined.

Blake & Knowles Steam Pump Works, East Cambridge, Mass.

Stewart Heater Co., Buffalo, N. Y.

Felt. (Building Sheathing.)

Baltimore Roofing & Asbestos Mfg. Co., Asbestos, Md.

Harrett Co., New York, N. Y.

Jones-Manville Co., H. W., New York, N. Y.

Fencing.

CORRUGATED GALVANIZED CONCRETE.

Amer. Sheet & Tin Plate Co., Pittsburgh, Pa.

WOVEN WIRE FIELD.

American Steel & Wire Co., Chicago, Ill.

Cyclone Fence Co., Waukegan, Ill.

Enterprise Iron Works, Indianapolis, Ind.

Gulf States Steel Co., Birmingham, Ala.

Fencing, Entrance Gates. (Iron, Steel, Wire.)

American Steel & Wire Co., Chicago, Ill.

Boiles Iron & Wire Wks., J. E., Detroit, Mich.

Cyclone Fence Co., Waukegan, Ill.

Dow Wire & Iron Works, Louisville, Ky.

Dufur & Co., Baltimore, Md.

Enterprise Iron Works, Indianapolis, Ind.

New Jersey Wire Cloth Co., Trenton, N. J.

Ohio Elevator & Mach. Co., The, Cleveland, O.

Van Dorn Iron Works Co., The, Cleveland, O.

Fertilizer Machy. (See also Phosphate Machy.)

K-B Pulverizer Co., Inc., New York, N. Y.

Stedman's Foundry & Machine Works, Aurora, Ind.

Valk & Murdoch Co., Charleston, S. C.

Files.

Barnett Co., G. & H., Philadelphia, Pa.

Nicholson File Co., Providence, R. I.

Filters. (Water for Domestic and Industrial Purposes.)

American Water Softener Co., Philadelphia, Pa.

International Filter Co., Chicago, Ill.

New York City Textile Fil. Co., New York, N. Y.

Pittsburgh Filter Mfg. Co., Pittsburgh, Pa.

Fire Clay. [See Brick, Fire.]

Fire Door Fixtures.

Richmond Safety Gate Co., Richmond, Ind.

Fire Escapes.

Boiles Iron & Wire Works, J. E., Detroit, Mich.
Chesapeake Iron Works, Baltimore, Md.
Jackson Iron & Bronze Works, Jackson, Tenn.

Fire Hose.

Eureka Fire Hose Mfg. Co., New York, N. Y.

Fire Places. (Brick and Tile.)

Hood Brick Co., B. Mifflin, Atlanta, Ga.

Fireproof Building Construction. [See Concrete Construction.]

Fireproof Building Material.
Asbestos Protected Metal Co., Pittsburgh, Pa.
Rannon Pipe Co., F., Louisville, Ky.
Dahlstrom Metallic Door Co., Jamestown, N. Y.
Johns-Manville Co., H. W., New York, N. Y.

Fireproof Doors and Shutters.

Dahlstrom Metallic Door Co., Jamestown, N. Y.
Kinneair Mfg. Co., Columbus, Ohio.
Merchant & Evans Co., Philadelphia, Pa.
Richmond Safety Gate Co., Richmond, Ind.
Wagner's Sons Co., J. F., Louisville, Ky.
Wilson Corp., J. G., New York, N. Y.

Fireproof Windows. [See Window Frames and Sashes (Fireproof).]

Fireproofing. (Brick and Tile.)

Hood Brick Co., B. Mifflin, Atlanta, Ga.

Fittings. (Wire Rope.)

Roebbing's Sons Co., John A., Trenton, N. J.

Waterbury Co., New York, N. Y.

Flanges. (Iron and Steel.)

American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Construction Co., Phila., Pa.
American Spiral Pipe Works, Chicago, Ill.
Dart Mfg. Co., E. M., Providence, R. I.
Glamorgan Pipe & Fdry. Co., Lynchburg, Va.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Wood & Co., R. D., Philadelphia, Pa.

Flooring.

COMPOSITION.
Johns-Manville Co., H. W., New York, N. Y.

CRESOTED BLOCK.
Republic Cresoting Co., Indianapolis, Ind.

HARDWOOD, MAPLE, OAK.
Whitting, William S., Elizabethtown, Tenn.

Floor Plugs.

Van Dorn Iron Works Co., The, Cleveland, O.

Flour and Grist Mill Machinery and Supplies.

Caldwell & Son Co., H. W., Chicago, Ill.
Salem Foundry & Mach. Works, Salem, Va.
Starr Co., B. F., Baltimore, Md.
Wolf Co., Chambersburg, Pa.

Flue Lining.

Owensboro Sewer Pipe Co., Owensboro, Ky.

Southern Sewer Pipe Co., Birmingham, Ala.

Forges.

Buffalo Forge Co., Buffalo, N. Y.

Forgings.

Weimer Chain & Iron Co., Lebanon, Pa.

Forms. (Steel, for Concrete Construction.)

Blaw Steel Const. Co., Pittsburgh, Pa.

Hydraulic Pressed Steel Co., Cleveland, Ohio.

Forms, Steel. (For Culvert, Road, Street, Side-walk, etc.)

Blaw Steel Construction Co., Pittsburgh, Pa.

Forms. (Special Wire.)

Roebbing's Sons Co., John A., Trenton, N. J.

Foundry Equipment and Supplies.

Hill-Brunner Fdry. Supply Co., Cincinnati, O.

Foundry Facings. (Talc and Soapstone.)

Hill-Brunner Fdry. Supply Co., Cincinnati, O.

Foundry and Machine Shops.

Glamorgan Pipe & Fdry. Co., Lynchburg, Va.

Goldens' Foundry & Machine Wks., Columbus, Ga.

Lombard Iron Works, Augusta, Ga.

Titus, E. E., Petersburg, Va.

Valk & Murdoch Co., Charleston, S. C.

Frogs. [See Railroad Frogs & Switches.]

Fuel Economizer.

Green Fuel Economizer Co., Matteawan, N. Y.

Sturtevant Co., B. F., Hyde Park, Boston, Mass.

Fuel Oil.

Gulf Refining Co., Pittsburgh, Pa.

Texas Co., The, Houston, Tex.

U. S. Asphalt Refining Co., New York, N. Y.

Furnaces. (For Industrial Purposes.)

Smythe Co., The, S. R., Pittsburgh, Pa.

Furniture. (Metal.)

The Van Dorn Iron Works Co., Cleveland, O.

Fuses. (Electrical.)

Daum Co., A. F., Pittsburgh, Pa.

Johns-Manville Co., H. W., New York, N. Y.

Fuse Shells. (Renewable.)

Daum Co., A. F., Pittsburgh, Pa.

Galvanizing.

Hanson-Gregory Galvanizing Co., Pittsburgh, Pa.

Galvanized Steel and Iron.

American Sheet & Tin Plate Co., Pittsburgh, Pa.

La Belle Iron Works, Steubenville, O.

McCalla Co., Harold, Philadelphia, Pa.

Whitaker-Gleason Co., Portsmouth Plant, Portsmouth, O.

Wood Iron & Steel Co., Alan, Philadelphia, Pa.

Youngstown Sheet & Tube Co., Youngstown, O.

Garage and House. (Portable.)

Dixie Culvert & Metal Co., Atlanta, Ga.

Steel Products Co., The, Savannah, Ga.

Gas Engines. [See Engines, Gas.]

Gas Machines.

Kemp Mfg. Co.,

- RAILROADS.**
Atlanta & West Point R. R. Atlanta, Ga.
Baltimore & Ohio Railroad, Baltimore, Md.
Carolina, Clinchfield & O. Ry., Johnson City, Tenn.
Carolina & North-Western Rwy. Co., Chester, S. C.
Central of Ga. Rwy., Savannah, Ga.
Florida East Coast Ry., St. Augustine, Fla.
Georgia Railroad, Atlanta, Ga.
Illinois Central Railroad Co., Chicago, Ill.
Nashville, Chattanooga & St. Louis Ry., Nashville, Tenn.
Norfolk & Western Ry., Roanoke, Va.
Queen & Crescent Route, Chattanooga, Tenn.
Seaboard Air Line, Norfolk, Va.
Southern Railway System, Washington, D. C.
- Industrial Track Work.** [See Railways Ind.]
- Injectors.**
Jenkins Bros., New York, N. Y.
Lunkenheimer Co., The, Cincinnati, O.
Randle Machinery Co., Cincinnati, Ohio.
Sellers & Co., Inc., Wm., Philadelphia, Pa.
- Insulating Materials.**
General Electric Co., Schenectady, N. Y.
John-Manville Co., H. W., New York, N. Y.
- Insurance.**
Hartford Steam Boiler Inspector & Insurance Co., Hartford, Conn.
Jenison Real Estate & Insurance Co., Birmingham, Ala.
Interior Conduits.
National Metal Molding Co., Pittsburg, Pa.
Interior Trim.
Dahlstrom Metallic Door Co., Jamestown, N. Y.
Investments. (Real Estate.)
Jenison Real Estate & Insurance Co., Birmingham, Ala.
Investment Securities.
Baker, Watson & Co., Baltimore, Md.
Cummings, Prudden & Co., Toledo, O.
Davis Co., W. M., Macon, Ga.
Edwards, Geo. B., New York, N. Y.
Electric Bond & Share Co., New York, N. Y.
Gunter & Sawyer, Jacksonville, Fla.
Halsey & Co., N. W., New York, N. Y.
Kiebohn Co. & Co., Cincinnati, Ohio.
Leach & Co., A. B., New York, N. Y.
Mercantile Trust & Deposit Co., Baltimore, Md.
National City Bank, Memphis, Tenn.
New First National Bank, Columbus, Ohio.
Rueven & Co., John, Chicago, Ill.
Powell, Garard & Co., Chicago, Ill.
Provident Savings Bank & Trust Co., Cincinnati, O.
Ridenour Co., Hugh, Columbus Ohio.
Sedgwick & Mayer, Cincinnati, Ohio.
Snyder Spitzer & Co., Toledo, O.
Slason & Co., W. L., Toledo, Ohio.
S. S. & Braun, Toledo, O.
Tillotson & Wolcott Co., Cleveland, O.
- Interurban Railway Cars.** (Passenger.)
McKen Motor Car Co., Omaha, Neb.
- Iron.**
Allegheny Steel Co., Pittsburgh, Pa.
Bourne Fuller Co., The, Cleveland, O.
La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
Union Drawn Steel Co., Beaver Falls, Pa.
Wood Iron & Steel Co., Allegheny, Pa.
- Iron Fencing.**
E. A. Spruce Iron Works, Indianapolis, Ind.
- Irrigation Machinery.**
Cameron Steam Pump Wks., A. S., New York, N. Y.
- Japanning Ovens.**
Oven Equipment & Mfg. Co., New Haven, Conn.
- Joint Hangers.**
The Van Dorn Iron Works Co., Cleveland, Ohio.
- Junk Dealers.**
Kander & Co., H., Bowling Green, Ohio.
- Knitting Machinery.**
Scott & Williams, Inc., Boston, Mass.
- Lace Leather.**
Graton & Knight Mfg. Co., Worcester, Mass.
- Labor Agency.**
Lynch, Thomas, Chicago, Ill.
- Ladders.** (Rolling.)
Myers & Bros., F. E., Ashland, Ohio.
- Lamps.** (Arc and Incandescent.)
Boston-Economy Lamp Division, National Lamp Works of General Electric Co., Danvers, Mass.
General Electric Co., Schenectady, N. Y.
Piedmont Electric Co., Asheville, N. C.
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.
- Lamps.** (Carbon and Tungsten.)
Newman Electric Lamp Co., Cincinnati, Ohio.
- Lamp Posts.** (Electric, Gas.)
Western Gas Construction Co., Ft. Wayne, Ind.
- Lands.** (Mineral, Timber, Farm, etc.) [See Industrial, Agricultural and Commercial Opportunities.]
- Landscape Architects.** (See Engineers.) [Landscape.]
- Lath.** (Metal.)
Consolidated Expanded Metal Co., Bradock, Pa.
Nor-Heser Expanded Metal Co., Chicago, Ill.
Penn Metal Co., Boston, Mass.
- Lathes.** (Engine.)
Greaves, Klusman Tool Co., The, Cincinnati, O.
- Lawn Furniture.** (Wire.)
Boiles Iron & Wire Works, J. E., Detroit, Mich.
Dufar & Co., Baltimore, Md.
Dufar, Baggett & Co., Baltimore, Md.
- Lead Burning.** (Conformers.)
Klink, H. G., Baltimore, Md.
- Ledgers.** (Loose Leaf.)
Irving Pitt Mfg. Co., Kansas City, Mo.
- Lights.** (Portable Acetylene.)
Milburn Co., Alex. N., Baltimore, Md.
- Liquor Filters.**
International Filter Co., Chicago, Ill.
- Lithographers, Engravers.**
Young & Selden Co., Baltimore, Md.
- Loans.**
Rosentbaum & Co., L. N., New York, N. Y.
- Lockers.**
- STEEL.**
Keighley Metal Ceiling and Mfg. Co., S. Pittsburgh, Pa.
Van Hartlingen, J. M., Atlanta, Ga.
- Locomotives.**
INDUSTRIAL.
Baldwin Locomotive Wks., The, Philadelphia, Pa.
Belt Locomotive Works, New York, N. Y.
Olinas Mfg. Co., Corry, Pa.
Fate Co., J. D., Plymouth, Ohio.
Jeffrey Mfg. Co., Columbus, O.
Lima Locomotive Corporation, Lima, O.
Porter Co., H. K., Pittsburgh, Pa.
Southern Iron & Equipment Co., Atlanta, Ga.
- RAILWAY.**
Baldwin Locomotive Wks., The, Philadelphia, Pa.
Lima Locomotive Corporation, Lima, O.
Porter Co., H. K., Pittsburgh, Pa.
- Looms and Weaving Machinery.**
Orompton & Knowles Loom Wks., Worcester, Mass.
Draper Co., Hopedale, Mass.
Saco-Lowell Shops, Boston, Mass.
- Loam Harrows.**
American Supply Co., Providence, R. I.
- Lubricants.**
Albany Lubricating Co., New York, N. Y.
Otis Elevator Co., New York, N. Y.
- Lubricants.** (Graphite.)
Dixon Crucible Co., Joseph, Jersey City, N. J.
- Lumber.**
- ASH, ELM, GUM, OAK.**
Lamb-Fish Lumber Co., Charleston, Miss.
- YELLOW PINE.**
Industrial Lumber Co., Elizabeth, La.
Southern Pine Ass'n, New Orleans, La.
- CREOSOTE.**
American Creosote Works, New Orleans, La.
- HEAVY CONSTRUCTION, PITCH IRON, ETC.**
Industrial Lumber Co., Elizabeth, La.
- Lumber Buggies.**
Sonic Steam Feed Works, Meridian, Miss.
- Lumber Plants.** (Wood or Reinforced Concrete.)
Saw-Mill Const. Co., Savannah, Ga.
- Lumber Stackers.**
Sonic Steam Feed Works, Meridian, Miss.
- Machinery.** (Special.)
Bliss Co., E. W., Brooklyn, N. Y.
Chattanooga Mach. Co., Chattanooga, Tenn.
Eagle Mfg. Co., Cincinnati, Ohio.
Elmer, Louis T., Alpena, Mich.
Universal Machine Co., Baltimore, Md.
- Machinery and Supplies.** (New and Second-Hand Bargains.)
Assots Purchasing Co., Wheeling, W. Va.
Birtwell, W. L., Philadelphia, Pa.
Boston Iron and Metal Co., Baltimore, Md.
Carey Co., Thos. F., New York, N. Y.
Cary Machine Co., D. L., Springfield, O.
Central Transfer Co., Baltimore, Md.
Chicago House Wrecking Co., Chicago, Ill.
Cleveland Belling and Machinery Co., Cleveland, O.
Contractors Mach. & Supply Co., Pittsburgh, Pa.
Corp. Inc., Herbert H., Norfolk, Va.
Cosh, Clarence, Richmond, Va.
Crawford Plumbing & Mill Supply Co., Winston-Salem, N. C.
Eagle Pipe Supply Co., Inc., New York, N. Y.
Emrie Mach. & Supply Corp., Norfolk, Va.
Gardner, Inc., James T., Chicago, Ill.
Granville Supply Co., St. Louis, Mo.
Hitner's Sons Co., Henry A., Philadelphia, Pa.
Hoisting Engine Sales Co., New York, N. Y.
Johnson R. P., Witherill, Va.
Jordan Bros., Norfolk, Va.
Lehman, Chas. T., Birmingham, Ala.
Lodge & Shipley Mach. Tool Co., Cincinnati, O.
MacGovern & Co., Inc., New York, N. Y.
Males Co., The, New York, N. Y.
Marine Metal & Supply Co., New York, N. Y.
Miller-Owen Electric Co., Pittsburgh, Pa.
Miller Supply Co., The, Huntington, W. Va.
Morrison Hackley, Richmond, Va.
New River Co., Macdonald, W. Va.
New York Machinery Exchange, New York, N. Y.
Nusebaum & Co., V. M., Fort Wayne, Ind.
O'Brien Machinery Co., Philadelphia, Pa.
Pannmuller Engineering Co., Chicago, Ill.
Piedmont Iron & Metal Co., Baltimore, Md.
Pipe & Contracting Supply Co., New York, N. Y.
Prentiss Tool & Supply Co., New York, N. Y.
Price & Pratt, Norfolk, Va.
Randle Machinery Co., Cincinnati, O.
Read Co., Howard W., Philadelphia, Pa.
Samuel, Frank, Philadelphia, Pa.
Sevier's Sons, Inc., E. Philadelphia, Pa.
Simmons Co., G. W., Memphis, Tenn.
Southern Mach. Exchange, Jacksonville, Fla.
Tampa Machinery Exchange, Tampa, Fla.
Tate & Williams, Cincinnati, Ohio.
Tiffany & Co., Inc., E. H., New York, N. Y.
Tillery Iron Co., J. F., Knoxville, Tenn.
Toomey, Frank, Inc., Philadelphia, Pa.
Wilson Mach. Co., St. Louis, Mo.
- Machine Tools.**
Greaves, Klusman Tool Co., The, Cincinnati, O.
Niles-Bement-Pond Co., New York, N. Y.
- Machinists.** (Engineers.)
Universal Machine Co., Baltimore, Md.
- Magnetic Separators.**
Buchanan Co., Inc., O. G., New York, N. Y.
- Mailing Lists Supplied.**
Rose-Gould, St. Louis, Mo.
- Mail Chutes.**
Cutler Mail Chute Co., Rochester, N. Y.
- Mantels.** (Wood and Tile.)
Northcross Mantel Co., W. J., Memphis, Tenn.
- Mechanical Draft.**
Buffalo Forge Co., Buffalo, N. Y.
- Metal Ceilings.** [See Ceilings, Metal.]
- Metaline.**
Metaline Co., Long Island City, N. Y.
- Metal.** (For Tanks, Culverts, Roofing, etc.)
Whitaker-Glossner Co., Portsmouth Plant, Portsmouth, Ohio.
- Metal Corner Bead.**
Penn Metal Co., Boston, Mass.
- Metal Culverts.** (See Culverts.) [Corrugated Metal.]
- Metal Lath.** (See Lath.) [Metal.]
- Metal Shingles.** [See Shingles.] [Metal.]
- Metal Window Frames and Sash.** [See Window Frames and Sash.] [Metal.]
- Metal Work.** [See Sheet Metal Work.]
- Metal-Working Machinery.**
Bliss Co., E. W., Brooklyn, N. Y.
Niles-Bement-Pond Co., New York, N. Y.
- Meters.** (Water.)
Allberger Pump & Condenser Co., New York, N. Y.
- Micrometers, Calipers, etc.**
Starrett Co., L. S., Athol, Mass.
- Milk Filters.** (Liquor, Milk, etc.)
International Filter Co., Chicago, Ill.
- Mill Engineers and Architects.**
O'Brian, W. C., Memphis, Tenn.
Sizine, J. E., Greenville, S. C.
- Mill Machinery and Supplies.**
Bailey-Libby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
Cory, Inc., Herbert H., Norfolk, Va.
Empire Mach. & Supply Corp., Norfolk, Va.
Gainesville Iron Works, Gainesville, Ga.
General Mill Supply Co., Charlotte, N. C.
Lombard Iron Works, Augusta, Ga.
Lunkenheimer Co., The, Cincinnati, O.
Mecklenburg Iron Works, Charlotte, N. C.
Miller Supply Co., The, Huntington, W. Va.
Salem Foundry & Machine Wks., Salem, Va.
Starr Co., H. E., Baltimore, Md.
Wolf Co., Chambersburg, Pa.
- Mining Machinery.**
Bartlett & Snow Co., C. O., Cleveland, O.
Jeffrey Mfg. Co., Columbus, O.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
McLanahan Iron Works, Charlotte, N. C.
Miller Supply Co., The, Huntington, W. Va.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- Mixers.** (Concrete.)
Ideal Concrete Machinery Co., Cincinnati, Ohio.
Jaeger Machine Co., Columbus, O.
Standard Scale & Supply Co., Pittsburgh, Pa.
Waterloo Cement Machinery Corp., Waterloo, Iowa.
- Mixing Machinery.**
Dunning, W. D., Syracuse, N. Y.
- Mortgages.** (Farm.)
Southern Mortgage Co., Atlanta, Ga.
- Motor Cars.** (Railroad.)
McKen Motor Car Co., Omaha, Neb.
- Motor Trucks.** (Gasoline.)
Kelly-Springfield Motor Truck Co., Springfield, O.
Packard Motor Car Co., Detroit, Mich.
White Co., The, Cleveland, O.
- Music Wire.**
American Steel & Wire Co., Chicago, Ill.
Waterbury Co., The, New York, N. Y.
- Nails.**
OUT.
La Belle Iron Works, Steubenville, O.
WIRE, ALL KINDS.
Atlantic Steel Co., Atlanta, Ga.
Gulf State Steel Co., Birmingham, Ala.
- Nails and Spikes.**
La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Youngstown Sheet & Tube Co., Youngstown, O.
- Nozzles.** (Aerating Sprinkler, etc.)
Spray Engineering Co., Boston, Mass.
- Nuts.** [See Bolts, Nuts, Rivets, etc.]
- Oils.** (Lubricating, etc.)
Albany Lubricating Co., New York, N. Y.
Gulf Refining Co., Pittsburgh, Pa.
Robinson & Son Co., Wm. O., Baltimore, Md.
Texas Co., The, Houston, Tex.
- Oil Cans.**
Wall Mfg. Supply Co., P. Allegheny, Pa.
- Oil Engines.** [See Engines (Oil).]
- Oil Separators.**
Stewart Heater Co., Buffalo, N. Y.
- Oil Well Machinery.**
Keystone Driller Co., Beaver Falls, Pa.
Williams Bros., Itasca, N. Y.
- Ore Handling Machinery.** [See Coal Handling Machinery.]
- Ornamental Iron Works.**
Bolles Iron & Wire Wks., J. E., Detroit, Mich.
Buckeye Wire & Iron Wks., Columbus, O.
Chesapeake Iron Works, Baltimore, Md.
Dow Wire & Iron Works, Louisville, Ky.
Jackson Iron & Bronze Works, Jackson, Tenn.
Ohio Elevator & Mach. Co., The, Columbus, O.
Roanoke Iron Works, Inc., Roanoke, Va.
Schreiber & Sons Co., The, Cincinnati, O.
Snead Architectural Iron Works, Louisville, Ky.
- Ovens.** (Sectional.)
The Oven Equipment & Mfg. Co., New Haven, Conn.
- Oxygen.**
International Oxygen Co., New York, N. Y.
- Oxygen Generators.**
International Oxygen Co., New York, N. Y.
- Oxy-Acetylene Welding and Cutting Outfit and Supplies.**
International Oxygen Co., New York, N. Y.
Milburn Co., Alex. N., Baltimore, Md.
- Packing House Apparatus.**
Day-on Heater & Hoist Co., Day-on, Ohio.
- Packing.** (Asbestos, Metallic, Rubber, Leather, etc.)
Baltimore Roofing & Asbestos Mfg. Co., Asbestos, Md.
Goodrich Co., B. F., Akron, Ohio.
Graton & Knight Mfg. Co., Worcester, Mass.
Jenkins Bros., New York, N. Y.
John-Manville Co., H. W., New York, N. Y.
New Jersey Car Spring & Rubber Co., Jersey City, N. J.
Power Specialty Co., New York, N. Y.
- Paint.**
METAL SURFACES.
Dixon Crucible Co., Joseph, Jersey City, N. J.
- PRESERVATIVE.**
John-Manville Co., H. W., New York, N. Y.
Keever Co., The, New Orleans, La.
- ROOFING, BUILDING, ETC.**
Cameron & Barkley Co., Charleston, S. C.
Chattanooga Paint Co., Chattanooga, Tenn.
O'Connor-Schwartz Paint Co., Augusta, Ga.
- PAPER.** (Roofing, Building, Sheathing, etc.)
Baltimore Roofing & Asbestos Mfg. Co., Asbestos, Md.
Barrett Co., New York, N. Y.
Cameron & Barkley Co., Charleston, S. C.
John-Manville Co., H. W., New York, N. Y.
- Partitions.** (Wooden Rolling.)
Van Hartlingen, J. M., Atlanta, Ga.
- Passenger Coaches.** (Railroad.) [Self-Driven.]
McKen Motor Car Co., Omaha, Neb.
- Patent Attorneys.**
Brown, Eugene C., Washington, D. C.
Chandless & Chandless, Washington, D. C.
Coleman, Watson E., Washington, D. C.
Evans & Co., Victor J., Washington, D. C.
Jenner, Herbert, Washington, D. C.
Lacey, R. S. & A. H., Washington, D. C.
Parker, C. L., Washington, D. C.
Pattison & Co., P. H., Washington, D. C.
Whitaker, Norman T., Washington, D. C.
- Pavement Filter.**
Barrett Co., New York, N. Y.
- Paving Block Machinery.**
Chattanooga Mach. Co., Chattanooga, Tenn.
- Paving Blocks.** (Crescoted.)
International Crescoting & Construction Co., Galveston, Tex.
- Republic Crescoting Co., Indianapolis, Ind.**
Southern Crescoting Co., Ltd., Slidell, La.
Southern Paving Const. Co., Chattanooga, Tenn.
Southern Wood Preserving Co., Atlanta, Ga.
Wyckoff Pipe & Crescoting Co., Inc., The, New York, N. Y.
- Paving Brick.**
Carlyle Paving Brick Co., Portsmouth, O.
Copeland-Ingles Shale Brick Co., Birmingham, Ala.
Dunn Wire-Cut Laid Brick Co., Cincinnati, Ohio.
Southern Clay Mfg. Co., Chattanooga, Tenn.
Standard Brick Co., Macon, Ga.
Westport Paving Brick Co., Baltimore, Md.
- Paving Mixers.** (Concrete.)
Ideal Concrete Machinery Co., Cincinnati, Ohio.
Jaeger Machine Co., Columbus, O.
Waterloo Cement Mach. Corp., Waterloo, Iowa.
- Paving Plants.** (Asphalt.)
Barber Asphalt Pav. Co., Iroquois Wks., Buffalo, N. Y.
Cummer & Son Co., F. D., Cleveland, O.
- Perforated Metal.**
Caldwell & Son, H. W., Chicago, Ill.
Erdle Perforating Co., Rochester, N. Y.
Hendricks Mfg. Co., The, Carbondale, Pa.
Manhattan Perforated Metal Co., New York, N. Y.
Mundt & Sons, Charles, Jersey City, N. J.
- Petroleum Refiners.**
Cosden & Co., Tulsa, Okla.
Gulf Refining Co., Pittsburgh, Pa.
Texas Co., The, Houston, Tex.
- Phosphate Machinery.**
American Process Co., New York, N. Y.
Bailey-Libby Co., The, Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
E. B. Pulverizer Co., New York, N. Y.
Link-Belt Co., Philadelphia, Pa.
McLanahan Stone Mach. Co., Hollidaysburg, Pa.
Raymond Impact Pulv. Co., Chicago, Ill.
Vaik & Murdoch Co., Charleston, S. C.
- Pig Iron.**
Bourne-Fuller Co., The, Cleveland, O.
La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron and R. R. Co., Birmingham, Ala.
- Pile Drivers.**
Volcan Iron Works, Chicago, Ill.
- Pile Driving and Wharf Building.**
Murray & Co., Inc., W. D., Norfolk, Va.
- Piles.** (Concrete, Corrugated, Reinforced.)
Smith and Brennan Pile Co., St. Louis, Mo.
- Piling.** (Crescoted.)
American Crescoting Works, New Orleans, La.
Intern'l Crescoting & Const. Co., Galveston, Tex.
- Southern Crescoting Co., Ltd., Slidell, La.**
Southern Paving Const. Co., Chattanooga, Tenn.
- Pillow Blocks.**
Goldens' Foundry & Machine Co., Columbus, Ga.
Medart Patent Pulley Co., St. Louis, Mo.
- Pipe.**
CAST IRON.
American Casting Co., Birmingham, Ala.
American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Construction Co., Phila. Pa.
Clow & Sons, James B., Chicago, Ill.
Donaldson Iron Co., Emmaus, Pa.
Giamorgan Pipe & Foundry Co., Lynchburg, Va.
Hammond-Ryrd Iron Co., Birmingham, Ala.
Lynchburg Foundry Co., Lynchburg, Va.
Massillon Iron & Steel Co., Massillon, O.
Stockham Pipe & Fittings Co., Birmingham, Ala.
Standard Cast Iron Pipe & Fdry. Co., Bristol, Pa.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Wood & Co., E. D., Philadelphia, Pa.
- PIPE.**
Frick Co., Waynesboro, Pa.
National Pipe Bending Co., New Haven, Conn.
York Mfg. Co., York, Pa.
- RIVETED.**
Abendroth & Root Mfg. Co., Newburgh, N. Y.
Keeler Co., E. Williamsport, Pa.
- SECOND HAND.**
Eagle Pipe Supply Co., Inc., New York, N. Y.
Marine Metal & Supply Co., New York, N. Y.
Pipe & Contractors Supply Co., New York, N. Y.
- SPIRAL RIVETED.**
Abendroth & Root Mfg. Co., Newburgh, N. Y.
American Spiral Pipe Works, Chicago, Ill.
- SPIRAL STEEL.**
Standard Spiral Pipe Works, Chicago, Ill.
- WOOD.**
Wyckoff & Son, Co., A., Elmira, N. Y.
- WROUGHT IRON.**
Youngstown Sheet & Tube Co., Youngstown, O.
- Pipe Bends.**
Pittsburgh Valve, Foundry & Const. Co., Pittsburgh, Pa.
- Pipe Fittings.**
American Cast Iron Pipe Co., Birmingham, Ala.
Lunkenheimer Co., The, Cincinnati, O.
National Tube Co., Pittsburgh, Pa.
Pittsburgh Valve, Foundry & Const. Co., Pittsburgh, Pa.
Stockham Pipe & Fittings Co., Birmingham, Ala.
York Mfg. Co., York, Pa.
- Pipe Unions and Joints.**
Dart Mfg. Co., E. M., Providence, R. I.
National Tube Co., Pittsburgh, Pa.
- Piping System.** (Designed and Installed.)
Pittsburgh Valve, Foundry & Construction Co., Pittsburgh, Pa.
- Pitch.**
Barrett Co., New York, N. Y.
- Plaster Machinery.**
Bartlett & Snow Co., C. O., Cleveland, O.
- Plates.** (Steel.)
Allegheny Steel Co., Pittsburgh, Pa.
Cincinnati Iron & Steel Co., Cincinnati, O.
Wood Iron & Steel Co., Allegheny, Pa.
- Plate Glass Settings.** (Safety and Burglar Proof.)
Zoult Drawn Metals Co., Chicago, Ill.
- Plumbing Fixtures.**
Kaestle Co., Inc., Buffalo, N. Y.
Standard Sanitary Mfg. Co., Pittsburgh, Pa.
- Plumbing.** (For Cotton Mills.)
Southern States Supply Co., Columbia, S. C.
- Pneumatic Tools.** [See Tools-Pneumatic.]
- Poles.** (Crescoted.)
American Crescote Works, New Orleans, La.
Intern'l Crescoting & Const. Co., Galveston, Tex.
Southern Paving Const. Co., Chattanooga, Tenn.
Southern Wood Preserving Co., Atlanta, Ga.
Southern Wood Preserving Co., Atlanta, Ga.
- Pulishing Machinery.** (Wheels and Blocks.)
Carter & Co., Niagara Falls, N. Y.
Vitrified Wheel Co., Westfield, Mass.
- Posts.** (Cast Iron) (Railway and Highway.)
U. S. Cast Iron Pipe & Foundry Co., Huntington, N. J.
- Post Caps.**
The Van Dorn Iron Works Co., Cleveland, Ohio.
- Power Plants.** (Steam and Electric.)
Allen-Scales Eng. Co., Inc., Nashville, Tenn.
Assots Purchasing Co., Wheeling, W. Va.
- Power Transmission Machinery.**
Automatic Shaft-Coupling Co., Alexandria, Va.
Bailey-Libby Co., Charleston, S. C.
Caldwell & Son Co., H. W., Chicago, Ill.
Campbell Mch. Co., New York, N. Y.
Cresson-Morris Co., Philadelphia, Pa.
General Mill Supply Co., Charlotte, N. C.
Goldens' Foundry & Machine Co., Columbus, Ga.
Jeffrey Mfg. Co., Columbus, Ohio.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Link-Belt Co., Philadelphia, Pa.
Medart Patent Pulley Co., St. Louis, Mo.
Morse Chain Co., Itasca, N. Y.
Schofield Iron Works, Macon, Ga.
Smith-Courtney Co., Richmond, Va.
Wolf Co., The, Chambersburg, Pa.
Wood's Sons T. B., Chambersburg, Pa.
- Presses.**
BALING, COTTONSEED OIL, ETC., HYDRAULIC AND POWER.
Boomer & Hochert Press Co., Syracuse, N. Y.
Cardwell Machine Co., Richmond, Va.
Continental Gun Co., Birmingham, Ala.
French Oil Mill Mch. Co., The, Piqua, O.
Murray Co., The, Atlanta, Ga.
Ripley Foundry & Machine Co., Ripley, Ohio
Saco-Lowell Shops, Boston, Mass.
- CIDER.**
Whiteburn Mfg. Corp., R. W., Norfolk, Va.
- STAMPING.**
Ams Machine Co., Max, Bridgeport, Conn.
Bliss Co., E. W., Brooklyn, N. Y.
- Pressed Steel Construction.**
Trussed Concrete Steel Co., Youngstown, O.
- Printers.** (Book, Catalog, Job, etc.)
Fleet-McGinley Co., Baltimore, Md.
- Prison Work.**
The Van Dorn Iron Works, Cleveland, Ohio.
- Promoters.**
Electric Bond & Share Co., New York, N. Y.
- Pulleys.**
FAUCTION CLUTCH.
Caldwell & Son, Co., H. W., Chicago, Ill.
Cresson-Morris Co., Philadelphia, Pa.
Medart Patent Pulley Co., St. Louis, Mo.
Moore & White Co., The, Philadelphia, Pa.
Wood's Sons Co., T. B., Chambersburg, Pa.
- STEEL RIM.**
Medart Patent Pulley Co., St. Louis, Mo.
- WOOD SPILT.**
Caldwell & Son, Co., H. W., Chicago, Ill.
Medart Patent Pulley Co., St. Louis, Mo.
Salem Foundry & Machine Wks., Salem, Va.
- Pulleys, Shafting and Hangers.**
Caldwell & Son, Co., H. W., Chicago, Ill.
Cresson-Morris Co., Philadelphia, Pa.
Goldens' Foundry & Mach. Co., Columbus, Ga.
Jeffrey Mfg. Co., Columbus, O.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Link-Belt Co., Philadelphia, Pa.
Medart Patent Pulley Co., St. Louis, Mo.
Wood's Sons Co., T. B., Chambersburg, Pa.

- Pulverizers.**
Austrian Mfg. Co., Chicago, Ill.
Gruendler Pat. Crusher & Pulv. Co., St. Louis, Mo.
Jeffrey Mfg. Co., Columbus, O.
K. S. Pulverizer Co., Inc., New York, N. Y.
Lehigh Car, Wheel and Axle Wks., Catawanna, Pa.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
Stedman's Fdry. & Mach. Wks., Aurora, Ind.
Western Wheeled Scraper Co., Aurora, Ill.
- Pumping Machinery.**
Alberger Pump & Cond. Co., New York, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cook, A. D., Lawrenceburg, Ind.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deane Steam Pump Plant, Holyoke, Mass.
Emerson Pump & Valve Co., Inc., The Alexandria, Va.
Erie Pump & Equipment Co., Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Machine Co., New York, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Moffatt Mch. Mfg. Co., Charlotte, N. C.
Morris Machine Wks., Baldwinville, N. Y.
Myers & Bros., E. Ashland, O.
Platt Iron Works, Dayton, O.
Weinman Pump Mfg. Co., The Columbus, O.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, Henry R., Harrison, N. J.
- Pumps.**
AIR.
Blakeslee Mfg. Co., Du Quoin, Ill.
Ingersoll-Rand Co., New York, N. Y.
Sullivan Mchry. Co., Chicago, Ill.
AIR LIFT.
Alberger Pump & Cond. Co., New York, N. Y.
Blakeslee Mfg. Co., Du Quoin, Ill.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deming Co., Salem, Ohio.
Jeaneville Iron Wks. Plant, Hazleton, Pa.
Moffatt Machinery Mfg. Co., Charlotte, N. C.
Murray Iron Wks. Co., Burlington, Ia.
Myers & Bros., E. Ashland, O.
Platt Iron Works, Dayton, O.
CENTRIFUGAL.
Alberger Pump & Cond. Co., New York, N. Y.
Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Erie Pump & Equipment Co., Erie, Pa.
Holland Mach. Co., New York, N. Y.
Jeaneville Iron Wks. Plant, Hazleton, Pa.
Morris Machine Wks., Baldwinville, N. Y.
Pacific Flash Tank Co., New York, N. Y.
Platt Iron Works, Dayton, O.
Wood & Co., R. D., Philadelphia, Pa.
Worthington, Henry R., Harrison, N. J.
DEEP WELL.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cook, A. D., Lawrenceburg, Ind.
Deming Co., Salem, Ohio.
Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Machine Co., New York, N. Y.
Keystone Driller Co., Beaver Falls, Pa.
Layne & Bowler Co., Houston, Tex.
Platt Iron Works, Dayton, O.
Weinman Pump Mfg. Co., Columbus, O.
DREDGING.
Buffalo Steam Pump Wks., Buffalo, N. Y.
Erie Pump & Equipment Co., Erie, Pa.
Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Mach. Co., New York, N. Y.
Morris Machine Wks., Baldwinville, N. Y.
Wood & Co., R. D., Philadelphia, Pa.
HYDRAULIC.
Buffalo Steam Pump Wks., Buffalo, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cardwell Machine Co., Richmond, Va.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deming Co., Salem, Ohio.
Erie Pump & Equipment Co., Erie, Pa.
French Oil Mill Mchry. Co., The Plaquemine, O.
Holland Mach. Co., New York, N. Y.
Platt Iron Works, Dayton, O.
WEINMAN PUMP MFG. CO., COLUMBUS, O.
STEAM.
Alberger Pump & Cond. Co., New York, N. Y.
Blake & Knowles Steam Pump Works, East Cambridge, Mass.
Blakeslee Mfg. Co., Du Quoin, Ill.
Buffalo Steam Pump Co., Buffalo, N. Y.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Cameron & Barkley Co., Charleston, S. O.
Dayton Air Compressor Co., Cambridge, Mass.
Cook, A. D., Lawrenceburg, Ind.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
Deming Co., Salem, Ohio.
Deane Steam Pump Plant, Holyoke, Mass.
Emerson Pump & Valve Co., Inc., The Alexandria, Va.
Keystone Driller Co., Beaver Falls, Pa.
Murray Iron Works Co., Burlington, Ia.
Platt Iron Works, Dayton, O.
Snow Steam Pump Plant, The New York, N. Y.
Weinman Pump Mfg. Co., Columbus, O.
Worthington, Henry R., Harrison, N. J.
TUBES DRIVEN.
Platt Iron Works, Dayton, O.
Sturtevant Co., B. F., Hyde Park, Boston, Mass.
VACUUM.
Cameron Steam Pump Wks., A. S., New York, N. Y.
Dean Bros. Steam Pump Wks., Indianapolis, Ind.
WATER-WORKS.
Deming Co., Salem, Ohio.
Goulds Mfg. Co., Seneca Falls, N. Y.
Holland Mach. Co., New York, N. Y.
Platt Iron Works, Dayton, O.
PUMP LEATHERS.
Graton & Knight Mfg. Co., Worcester, Mass.
PUNCHING AND SHEARING MACHINERY.
Bliss Co., E. W., Brooklyn, N. Y.
PURCHASING AGENT.
Grimes, Howard S., Baltimore, Md.
- Railroads.** [See Industrial, Agricultural and Commercial Opportunities.]
- Railroad Cars.**
McKen Motor Car Co., Omaha, Neb.
- Railroad Equipment and Supplies** (New and Second-hand.)
American Frog & Switch Co., Hamilton, O.
Bailey-Lobby Co., The Charleston, S. O.
Benjamin Evans Co., Harry, St. Louis, Mo.
Birmingham Rail & Loco. Co., Birmingham, Ala.
Carey Co., Thos. F., New York, N. Y.
Cincinnati Frog & Switch Co., Cincinnati, O.
Contractors Service Co., New York, N. Y.
Foster Co., L. B., Pittsburgh, Pa.
Gardner, Inc., James T., Chicago, Ill.
Georgia Car & Locomotive Co., Atlanta, Ga.
Granville Supply Co., St. Louis, Mo.
Hirsch Rolling Mill Co., St. Louis, Mo.
Hoffman & Co., Inc., R. O., Baltimore, Md.
Hyde & Co., Inc., R. O., Baltimore, Md.
Hyde Bros. Steel & Rail Co., Pittsburgh, Pa.
Jordan Bros., Norfolk, Va.
Kilby Frog & Switch Co., Birmingham, Ala.
Males Co., The New York, N. Y.
Mezger, Louis H., Mobile, Ala.
National Steel Rail Co., St. Louis, Mo.
Q. & O. Co., The New York, N. Y.
Read Co., Howard W., Philadelphia, Pa.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. C., New York, N. Y.
Southern Iron & Equipment Co., Atlanta, Ga.
Steel Rail Supply Co., The New York, N. Y.
Tillery Iron Co., J. F., Knoxville, Tenn.
United States Rail Co., Cumberland, Md.
Weir Frog Co., Cincinnati, O.
West Virginia Steel Co., Huntington, W. Va.
Wilson & Co., E. H., Philadelphia, Pa.
Wilson Mach. Co., St. Louis, Mo.
Zelnicke Supply Co., Walter A., St. Louis, Mo.
- Railroad Frogs and Switches.**
American Frog & Switch Co., Hamilton, O.
Cincinnati Frog & Switch Co., Cincinnati, O.
Frank, M. K., Pittsburgh, Pa.
Kilby Frog & Switch Co., Birmingham, Ala.
Mezger, Louis H., Mobile, Ala.
Robinson & Orr, Pittsburgh, Pa.
Weir Frog Co., Cincinnati, O.
- Rails.** (Steel.)
Benjamin Evans Co., Harry, St. Louis, Mo.
Carey Co., Thos. F., New York, N. Y.
Carnegie Steel Co., Pittsburgh, Pa.
Foster Co., L. B., Pittsburgh, Pa.
Frank, M. K., Pittsburgh, Pa.
Hirsch Rolling Mill Co., St. Louis, Mo.
Hoffman & Co., Inc., R. O., Baltimore, Md.
Hyde Bros. Steel & Rail Co., Pittsburgh, Pa.
Hyde & Co., Inc., R. O., Baltimore, Md.
Lackawanna Steel Co., Lackawanna, N. Y.
Lewy & Co., Henry, Philadelphia, Pa.
Mezger, Louis H., Mobile, Ala.
National Steel Rail Co., St. Louis, Mo.
Republic Iron & Steel Co., Youngstown, O.
Robinson & Orr, Pittsburgh, Pa.
Sherwood, E. C., New York, N. Y.
Southern Iron & Equipment Co., Atlanta, Ga.
Steel Rail Supply Co., The New York, N. Y.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
United States Rail Co., Cumberland, Md.
West Virginia Rail Co., Huntington, W. Va.
Wilson & Co., E. H., Philadelphia, Pa.
- Rail Braces, Crossings, etc.** [See R. R. Frogs and Switches.]
- Railings.** (Iron Pipe.)
Pipe Railing Const. Co., Long Island City, N. Y.
- Railings and Grilles.** (Brass.)
Newman Mfg. Co., Cincinnati, O.
- Railways.** (Industrial.)
Chase Fdry. & Mfg. Co., Columbus, O.
Cincinnati Frog & Switch Co., Cincinnati, O.
Hunt Co., Inc., C. W., West New Brighton, N. Y.
Link-Belt Co., Phila., Pa.
- Railway Repair Shops Equipment.**
Niles-Hement-Pond Co., New York, N. Y.
- Real Estate Investment.**
Jemison Real Estate & Insurance Co., Birmingham, Ala.
- Real Estate Propositions Developed and Financed.**
Bready-Sweater Co., Baltimore, Md.
- Reeds.**
American Supply Co., Providence, R. I.
- Refrigerating Machinery and Apparatus.**
Husterman & Cramer Co., The Detroit, Mich.
Remington Mach. Co., Wilmington, Del.
Viller Mfg. Co., Milwaukee, Wis.
Vogt Mach. Co., Inc., Henry, Louisville, Ky.
York Mfg. Co., York, Pa.
- Reinforcing Bars.** [See Concrete Reinforcing Bars.]
- Rendering Tanks.**
Dayton Beiler & Hoist Co., Dayton, Ohio.
- Repairing.** (Armature and Elect. Appliances.)
Nashville Armature Works, Nashville, Tenn.
- River and Harbor Improvements.** (Dredging, Dock, Wharves, etc.)
Atlantic, Gulf and Pacific Co., New York, N. Y.
Globe Dredging Co., Savannah, Ga.
- Riveters.** (Pneumatic.)
Ingersoll-Rand Co., New York, N. Y.
- Road Expansion Joints.**
Asbestos Protected Metal Co., Pittsburgh, Pa.
Carter, The Phila., Cincinnati, O.
Pioneer Asphalt Co., Lawrenceville, Ill.
- Road and Street Machinery.**
Austin-Western Road Mchry. Co., The Chicago, Ill.
Barber Asphalt Paving Co., Philadelphia, Pa.
Buffalo Steam Roller Co., Buffalo, N. Y.
Erie Machine Shops, Erie, Pa.
Kelly Springfield Road Roller Co., Springfield, O.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Ruggles-Coles Engineering Co., New York, N. Y.
The Automatic Shovel Co., Lorain, O.
Universal Road Mchry. Co., Kingston, N. Y.
Western Wheeled Scraper Co., Aurora, Ill.
- Road and Street Materials.**
Barber Asphalt Paving Co., Phila., Pa.
Barrett Co., New York, N. Y.
Bitumast Paving Co., The New York, N. Y.
Texas Co., The Houston, Tex.
U. S. Asphalt Refining Co., New York, N. Y.
- Road Binders.**
Barber Asphalt Paving Co., Philadelphia, Pa.
Barrett Co., New York, N. Y.
U. S. Asphalt Refining Co., New York, N. Y.
- Road Oil.**
Barber Asphalt Paving Co., Philadelphia, Pa.
Gulf Refining Co., Pittsburgh, Pa.
Texas Co., The Houston, Tex.
U. S. Asphalt Refining Co., New York, N. Y.
- Road Preservatives.**
Barber Asphalt Paving Co., Philadelphia, Pa.
Barrett Co., New York, N. Y.
Finley Sam E., Atlanta, Ga.
Gulf Refining Co., Pittsburgh, Pa.
Texas Co., The Houston, Tex.
U. S. Asphalt Refining Co., New York, N. Y.
- Road Roller.** (Steam.)
Austin-Western Road Mchry. Co., The Chicago, Ill.
Barber Asphalt Paving Co., Philadelphia, Pa.
Buffalo Steam Roller Co., Buffalo, N. Y.
Erie Mach. Shops, Erie, Pa.
Kelly Springfield Road Roller Co., Springfield, O.
Universal Road Mchry. Co., Kingston, N. Y.
- Road Scarifiers.**
Buffalo Steam Roller Co., Buffalo, N. Y.
- Rock Crushers.** [See Crushers, Rock.]
- Roller Covering Supplies.**
American Supply Co., Providence, R. I.
- Roofing.**
CEMENT TILE.
American Cement Tile Mfg. Co., Pittsburgh, Pa.
READY PREPARED. (Felt, Tar, Asbestos, Asphalt.)
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Asbestos Protected Metal Co., Pittsburgh, Pa.
Baltimore Roofing & Asbestos Mfg. Co., Asbestos, Md.
Barrett Co., New York, N. Y.
Cameron & Barkley Co., Charleston, S. O.
Johns-Manville Co., H. W., New York, N. Y.
Odendahl-Monks Corp., Norfolk, Va.
- METAL SHINGLES.**
Borger Mfg. Co., Canton, Ohio.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Merchant & Evans Co., Philadelphia, Pa.
Southern Sheet & Tin Plate Co., Ashland, Ky.
- SLATE.**
Arvon-Buckingham Slate Co., Inc., Richmond, Va.
East Bangor Consol. Slate Co., East Bangor, Pa.
Genuine Bangor Slate Co., Easton, Pa.
Johnson, E. J., New York, N. Y.
- Roofing and Siding.** (Metal.)
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Cameron & Barkley Co., Charleston, S. O.
Carnahan Tin Plate & Sheet Co., Canton, O.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., The Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Merchant & Evans Co., Philadelphia, Pa.
Southern Sheet & Tin Plate Co., Ashland, Ky.
Steel Products Co., The Savannah, Ga.
Tennessee Metal Culvert Co., Nashville, Tenn.
Whitaker-Glessner Co., Portsmouth Works, Portsmouth, O.
Youngstown Sheet and Tube Co., Youngstown, O.
- Rope.**
MANILA, SISAL, HEMP, ETC.
Broderick & Bascom Rope Co., St. Louis, Mo.
Columbian Rope Co., Auburn, N. Y.
Waterbury Co., New York, N. Y.
Wood's Sons Co., T. B., Chambersburg, Pa.
- WIRE TRANSMISSION, HOISTING, HAULAGE.**
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.
Hunt Co., Inc., C. W., West New Brighton, N. Y.
Roebing's Sons Co., John A., Trenton, N. J.
Waterbury Co., New York, N. Y.
Youngstown Sheet & Tube Co., Youngstown, O.
- Rope Drives.**
Gouldwell & Son Co., H. W., Chicago, Ill.
Cooper Co., C. & G., Mt. Vernon, O.
Crescent-Morris Co., Philadelphia, Pa.
Jones & Laubach Steel Co., Pittsburgh, Pa.
Medart Patent Pulley Co., St. Louis, Mo.
Waterbury Co., New York, N. Y.
Wood's Sons Co., T. B., Chambersburg, Pa.
- Rubber Goods.**
Eureka Fire Hose Mfg. Co., New York, N. Y.
Goodrich Co., B. F., Akron, Ohio.
New Jersey Car Spring & Rubber Co., Jersey City, N. J.
- Rules.** (Steel.)
Lufkin Rule Co., Saginaw, Mich.
Sharratt Co., L. S., Athol, Mass.
- Saddles.** (For Cotton Mchry., Oilless.)
Bound Brook Oil-less Bearing Co., Bound Brook, N. J.
- Sales and Vaults.**
Barnes Safe & Vault Co., Richmond, Va.
York Safe & Lock Co., York, Pa.
- Sand.**
Arundel Sand & Gravel Co., Baltimore, Md.
Kirkpatrick Sand & Cement Co., Birmingham, Ala.
Preston-Small Const. Co., Macon, Ga.
- Sand Dryers.**
American Process Co., New York, N. Y.
Ripley Foundry & Mch. Co., Ripley, O.
Ruggles-Coles Engineering Co., New York, N. Y.
- Sanitary Industrial Equipment.**
Standard Sanitary Mfg. Co., Pittsburgh, Pa.
- Sap Stain Preventive.**
Church & Dwight Co., New York, N. Y.
- Sash Chain.**
Niagara Falls Metal Stamping Wks., Niagara Falls, N. Y.
- Sash Operating Devices.**
Droue Co., G., Bridgeport, Conn.
- Saws.**
Huth Bros. Saw Mfg. Co., Inc., Rochester, N. Y.
- Saws (Hack.)**
Starrett Co., L. S., Athol, Mass.
- Sawmill Dogs.**
Soule Steam Feed Works, Meridian, Miss.
- Sawmills.**
Gainesville Iron Works, Gainesville, Ga.
- Sawmill Machinery.**
Bailey-Lobby Co., Charleston, S. O.
Cameron & Barkley Co., Charleston, S. O.
McKlenburg Iron Works, Charlotte, N. C.
Schiffel Iron Works, Macon, Ga.
- Saw Sharpeners.**
Carborundum Co., Niagara Falls, N. Y.
Vitrified Wheel Co., Westfield, Mass.
- Scaffolds.** (Portable Steel.)
Steel Scaffolding Co., Evansville, Ind.
- Scaffold.** (Contractors—Portable Steel.)
Steel Scaffolding Co., Evansville, Ind.
- Scales.**
Standard Scale & Supply Co., Pittsburgh, Pa.
- Scales.** (Dial, for R. R., Factory, Warehouse.)
American Iron Scale Co., New York, N. Y.
- Scrapers.** (Power.)
Sauerman Bros., Chicago, Ill.
- Scrap Iron and Steel.**
Benjamin Evans Co., Harry, St. Louis, Mo.
Kander & Co., H., Bowling Green, Ohio.
- Screens.** (Fly, Window and Door.)
Ludlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.
- Screens.** (Mining, Stone, etc.)
Erdle Perforating Co., Rochester, N. Y.
Hendrick Mfg. Co., Canton, O.
Jeffrey Mfg. Co., Columbus, O.
Ludlow-Saylor Wire Co., St. Louis, Mo.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.
Mundt & Sons, Charles, Jersey City, N. J.
New Jersey Wire Cloth Co., Trenton, N. J.
Stedman's Foundry & Mch. Wks., Aurora, Ind.
- Screenings.** (For Concrete and Road Construction.)
American Ballast Co., Knoxville, Tenn.
- Screws.**
MACHINE.
Progressive Mfg. Co., Torrington, Conn.
- SAFETY SET.**
Allen Manufacturing Co., Hartford, Conn.
- Screw Machine Products.**
Progressive Mfg. Co., Torrington, Conn.
- Separators.**
DUST.
Buffalo Forge Co., Buffalo, N. Y.
Raymond Bros. Impact Pulv. Co., Chicago, Ill.
- SEAM.**
Griscom Russell Co., The New York, N. Y.
- Septic Tanks.**
Cement Products Co., Wilmington, N. C.
U. S. Sanitary Septic Tank Co., Memphis, Tenn.
- Settings for Plate Glass.** (Safety and Burglar Proof.)
Zouri Drawn Metals Co., Chicago, Ill.
- Sewage Disposal Plant.**
Cement Products Co., Wilmington, N. C.
Kaustine Co., Inc., Buffalo, N. Y.
U. S. Sanitary Septic Tank Co., Memphis, Tenn.
- Sewer Flushing Siphons.**
Pacific Flush Tank Co., New York, N. Y.
- Sewer Joint Compounds.**
Pacific Flush Tank Co., New York, N. Y.
- Sewer Pipe.** (Vitrified.)
Bannon Pipe Co., F., Louisville, Ky.
Blackmer & Post Pipe Co., St. Louis, Mo.
Cannellon Sewer Pipe Co., Cannellon, Ind.
Owensboro Sewer Pipe Co., Owensboro, Ky.
Pomona Terra-Cotta Co., Pomona, N. C.
Southern Sewer Pipe Co., Birmingham, Ala.
- Sewage Pumping and Disposal Apparatus.**
Pacific Flush Tank Co., New York, N. Y.
- Shafting.**
COLD ROLLED STEEL.
American Steel & Wire Co., Chicago, Ill.
POLISHED STEEL.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Medart Patent Pulley Co., St. Louis, Mo.
Republic Iron & Steel Co., Youngstown, O.
Union Drawn Steel Co., Beaver Falls, Pa.
- Shafting.** [See Pulleys, Shafting and Hangers.]
- Sharpening Stones.**
Carborundum Co., Niagara Falls, N. Y.
Vitrified Wheel Co., Westfield, Mass.
- Sheet Brass and Copper.**
McKenna Bros. Brass Co., Pittsburgh, Pa.
- Sheet Metal Work.**
Atlas Metal Works, Dallas, Texas.
Dixie Culvert & Metal Co., Atlanta, Ga.
McMillan Iron Works, Jacksonville, Fla.
Niagara Falls Metal Stamping Wks., Niagara Falls, N. Y.
Odendahl-Monks Corp., Norfolk, Va.
South Atlantic Blow Pipe & Sheet Metal Co., Savannah, Ga.
Steel Products Co., The Savannah, Ga.
Tennessee Metal Culvert Co., Nashville, Tenn.
- Sheet Metal Working Machinery.**
Bliss Co., E. W., Brooklyn, N. Y.
Eagle Mfg. Co., Cincinnati, Ohio.
- Sheet Steel and Iron.**
American Sheet & Tin Plate Co., Pittsburgh, Pa.
Cincinnati Iron & Steel Co., Cincinnati, O.
La Belle Iron Works, Steubenville, O.
Republic Iron & Steel Co., Youngstown, O.
Southern Sheet & Tin Plate Co., Ashland, Ky.
Tennessee Coal, Iron & R. R. Co., Birmingham, Ala.
Whitaker-Glessner Co., Portsmouth Works, Portsmouth, O.
- Shells.**
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
Youngstown Sheet & Tube Co., Youngstown, O.
- Shelving.** [(Steel) Vault, Store, etc.]
Van Hurlingen, J. M., Atlanta, Ga.
- Shingles.** (Metal.)
Borger Mfg. Co., Canton, Ohio.
Cortright Metal Roofing Co., Philadelphia, Pa.
Edwards Mfg. Co., Cincinnati, O.
Hyndman Roofing Co., Cincinnati, O.
Merchant & Evans Co., Philadelphia, Pa.
Southern Sheet & Tin Plate Co., Ashland, Ky.
- Shutters.**
IRON.
Bolles Iron & Wire Wks., J. E., Detroit, Mich.
Cheesapeake Iron Works, Baltimore, Md.
- SILCO ROLLING.**
Kinnear Mfg. Co., Columbus, O.
- Silos.**
CANTON METAL.
Canton Culvert & Silo Co., Canton, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Tennessee Metal Culvert Co., Nashville, Tenn.
- WOOD.**
National Silo Co., Charlotte, N. C.
- Skewers and Dowels.** (Oilless.)
Bound Brook Oil-less Bearing Co., Bound Brook, N. J.
- Skylights.**
Chattanooga Roofing & Fdry Co., Chattanooga, Tenn.
- Skylights.** (Puttyless.)
Asbestos Protected Metal Co., Pittsburgh, Pa.
Droue Co., G., Bridgeport, Conn.
- Slate.** (Roofing, Sanitary, Structural, etc.)
Arvon-Buckingham Slate Co., Inc., Richmond, Va.
East Bangor Consol. Slate Co., East Bangor, Pa.
Genuine Bangor Slate Co., Easton, Pa.
Johnson, E. J., New York, N. Y.
- Slings.** (Wire Rope.)
Roebing's Sons Co., John A., Trenton, N. J.
- Sluice Gates and Appliances.**
Goldwell-Wilcox Co., Newburgh, N. Y.
- Smokestacks.** (Iron and Steel.)
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Chicago, Ill.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Kearl Co., E., Williamsport, Pa.
Lombard Iron Works, Augusta, Ga.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Schiffel Iron Works, Macon, Ga.
Virginia Bridge & Iron Co., Roanoke, Va.
- Soda.** (Bicarbonate.)
Church & Dwight Co., New York, N. Y.
- Speed Changes.** (Variable.)
Moore & White Co., The Philadelphia, Pa.
- Spikes.** (Railroad.)
Hoffman & Co., Inc., R. O., Baltimore, Md.
- Spikes.** [See Nails and Spikes.]
- Sprinkler Tank.** (Steel.)
Chicago Bridge & Iron Works, Chicago, Ill.
- Springs.** (Machinery, Railway, Spiral.)
Cary Spring Works, New York, N. Y.
Raymond Mfg. Co., Ltd., Corry, Pa.
- Stamp Mills.**
McKlenburg Iron Works, Charlotte, N. C.
- Stamps.** (Brass, Rubber.)
Baltimore Office Supply Co., Inc., Baltimore, Md.
Dorman Co., J. F. W., Baltimore, Md.
- Standpipes.**
Chattanooga Boiler & Tank Co., Chattanooga, Tenn.
Chicago Bridge & Iron Works, Chicago, Ill.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Hartley Boiler Works, Montgomery, Ala.
Kearl Co., E., Williamsport, Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Struthers-Wells Co., Warren, Pa.
- Stationers.** (Envelopes, Letter and Bill Head etc.)
Young & Selden Co., Baltimore, Md.
- Steam Feeds.**
Soule Steam Feed Works, Meridian, Miss.
- Steam Fittings.** (Cast Iron.)
Stockham Pipe and Fittings Co., Birmingham, Ala.
- Steam Heating.**
Keeler Co., E., Williamsport, Pa.
- Steamship Lines.** (Coastwise.)
Baltimore Steam Packet Co., Baltimore, Md.
Chesapeake Steamship Co., Baltimore, Md.
Detroit & Cleveland Navigation Co., Detroit, Mich.
Merchants & Miners Trans. Co., Baltimore, Md.
- Steamship Lines.** (Trans-Atlantic.)
Gannard Steamship Co., Ltd., New York, N. Y.
- Steam and Electric Track Specialties.** (For R. R., Steam and Electric.)
Q. & O. Co., The New York, N. Y.
- Steam Hammers.**
Erie Foundry Co., Erie, Pa.
Niles-Hement-Pond Co., New York, N. Y.
- Steam Shovels.**
American Clay Machy. Co., The Bucyrus, O.
Ball Engine Co., Erie, Pa.
Erie Steam Shovel, Erie, Pa.
Fairbanks Steam Shovel Co., Marion, O.
Osgood Co., The Marion, Ohio
Sherwood, E. C., New York, N. Y.
The Automatic Shovel Co., Lorain, O.

Steam Shovel Chains.
Weimer Chain & Iron Co., Lebanon, Pa.

Steam Specialties.
Lankenhelm Co., The, Cincinnati, O.

Steam Traps.
Jenkins Bros., New York, N. Y.
Johns-Manville Co., H. W., New York, N. Y.

Steel.
Atlantic Steel Co., Atlanta, Ga.
Barnes-Fuller Co., The, Cleveland, O.
Carnegie Steel Co., Pittsburgh, Pa.
Dietrich Bros., Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Hoffman & Co., Inc., R. C., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
La Belle Iron Works, Steubenville, O.
Lackawanna Steel Co., Lackawanna, N. Y.
Republic Iron & Steel Co., Youngstown, O.
Tennessee Coal, Iron & R. R. Co., Birm'gh'm, Ala.
Union Drawn Steel Co., Beaver Falls, Pa.
Whitaker-Greener Co., Portsmouth Works, Portsmouth, O.

Steel.
Wood Iron & Steel Co., Alan, Philadelphia, Pa.
Youngstown Sheet & Tube Co., The, Youngstown, Pa.

Steel.
McKenna Bros., Brues Co., Pittsburgh, Pa.
Union Drawn Steel Co., Beaver Falls, Pa.

Vanadium.
Carnegie Steel Co., Pittsburgh, Pa.
Union Drawn Steel Co., Beaver Falls, Pa.

Steel. (For Railroads.)
Q. & O. Co., The, New York, N. Y.

Steel Buildings. (Designers, Builders.)
American Bridge Co., New York, N. Y.
Belmont Iron Works, Philadelphia, Pa.
Blaw Steel Construction Co., Pittsburgh, Pa.
Case Crane & Engineering Co., Columbus, O.
Champion Bridge Co., Wilmington, O.
Chesapeake Iron Works, Baltimore, Md.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Phoenix Iron Co., Philadelphia, Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Richmond Structural Steel Co., Richmond, Va.
Schreiber & Sons Co., The, Cincinnati, O.
Snead Architectural Iron Works, Louisville, Ky.
Virginia Bridge & Iron Co., Roanoke, Va.

Steel Castings.
Crucible Steel Castings Co., Lansdowne, Pa.
Hoffman & Co., Inc., R. C., Baltimore, Md.
Riverside Steel Casting Co., Newark, N. J.

Steel Plate Work.
Blaw Steel Construction Co., Pittsburgh, Pa.
Casey-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Chesapeake Iron Works, Baltimore, Md.
Chicago Bridge & Iron Works, Chicago, Ill.
Cincinnati Boiler Works, Cincinnati, O.
Hoffman & Co., Inc., R. C., Baltimore, Md.
Hydraulic Pressed Steel Co., Cleveland, Ohio.
Phoenix Iron Co., Philadelphia, Pa.
Struthers-Wells Co., Warren, Pa.

Steel Protector. (Concrete Curb, Steps, etc.)
[See Curb Protector Steel.]

Steel Sheet Piling.
Carnegie Steel Co., Pittsburgh, Pa.
Franks, J. E., Atlanta, Ga.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.

Stencils.
Baltimore Office Supply Co., Inc., Baltimore, Md.
Dorman Co., J. F. W., Baltimore, Md.

Stills. (Torpetine.)
McMillan Bros., Jacksonville, Fla.

Stirrups. (Building.)
Chesapeake Iron Works, Baltimore, Md.

Stock Certificates, Bonds and Seals.
Baltimore Office Supply Co., Inc., Baltimore, Md.
Dorman Co., J. F. W., Baltimore, Md.

Stokers. (Mechanical.)
Babcock & Wilcox Co., New York, N. Y.
Westinghouse Electric & Mfg. Co., Pittsburgh, Pa.

Stones. (Building.)
Kirkpatrick Sand & Cement Co., Birm'gh'm, Ala.

Stones. [Crushed.] [See Crushed Stone.]

Stone and Gravel Plants.
Weller Mfg. Co., Chicago, Ill.

Storage Batteries.
Elec. Storage Battery Co., The, Philadelphia, Pa.

Store Fronts. (Metal.)
Zouri Drawn Metals Co., Chicago, Ill.

Strapping Leather.
Graton & Knight Mfg. Co., Worcester, Mass.

Structural Steel and Iron.
Allegheny Steel Co., Pittsburgh, Pa.
Amer. Bridge Co., New York, N. Y.
Blaw Steel Construction Co., Pittsburgh, Pa.
Belmont Iron Works, Philadelphia, Pa.
Carnegie Steel Co., Pittsburgh, Pa.
Case Crane & Engineering Co., Columbus, Ohio.
Champion Bridge Co., Wilmington, O.
Chesapeake Iron Works, Baltimore, Md.
Cincinnati Iron & Steel Co., Cincinnati, O.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Dietrich Bros., Baltimore, Md.
Hoffman & Co., Inc., R. C., Baltimore, Md.
Jones & Laughlin Steel Co., Pittsburgh, Pa.
Lackawanna Steel Co., Lackawanna, N. Y.
Phoenix Iron Co., Philadelphia, Pa.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Republic Iron & Steel Co., Youngstown, O.
Richmond Structural Steel Co., Richmond, Va.
Roanoke Iron Works, Inc., Roanoke, Va.
Scaife & Sons Co., Wm. B., Pittsburgh, Pa.
Schreiber & Sons Co., The, Cincinnati, O.
Snead Architectural Iron Works, Louisville, Ky.
Southern Sheet & Tin Plate Co., Ashtabula, Ky.
Steel Products Co., The, Savannah, Ga.
Tennessee Coal, Iron & R. R. Co., Birm'gh'm, Ala.
Terry & Tench Co., Inc., The, New York, N. Y.
Vincennes Bridge Co., Vincennes, Ind.
Virginia Bridge & Iron Co., Roanoke, Va.

Sulphur.
Union Sulphur Co., New York, N. Y.

Sulphuric Acid Plants.
Klink, H. G., Baltimore, Md.

Super-Heaters. (Steam.)
Babcock & Wilcox Co., New York, N. Y.
Power Specialty Co., New York, N. Y.

Surveying Instruments.
Electric Blue Print & Supply Co., Louisville, Ky.
Weber & Co., F., Philadelphia, Pa.

Surveyor. (Land, Road and Street.)
Fluharty, W. B., Greensboro, N. C.

Swinging Engines.
Dake Engine Co., Grand Haven, Mich.

Switchboards, Switches, etc.
General Electric Co., Schenectady, N. Y.
Westinghouse Elect. & Mfg. Co., East Pittsburgh, Pa.

Switches. [See Railroad Frogs and Switches.]

Switchstands.
Weir Frog Co., Cincinnati, O.

Tackle Blocks. (For Wire or Manila Rope.)
Broderick & Bascom Rope Co., St. Louis, Mo.

Tanks.
CORRUGATED METAL K. D.
Dixie Culvert & Metal Co., Atlanta, Ga.
Tennessee Metal Culvert Co., Nashville, Tenn.

IRON AND STEEL.
American Bridge Co., New York, N. Y.
American Water Softener Co., Philadelphia, Pa.
Caldwell Co., Inc., W. E., Louisville, Ky.
Casey-Hedges Co., Chattanooga, Tenn.
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Chicago Bridge & Iron Works, Chicago, Ill.
Cincinnati Boiler Works, Cincinnati, O.
Dixie Culvert & Metal Co., Atlanta, Ga.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Hartley Boiler Works, Montgomery, Ala.
Hendricks Mfg. Co., Carbondale, Pa.
Keefer Co., E. Williamsport, Pa.
Lombard Iron Works, Augusta, Ga.
Lookout Boiler & Mfg. Co., Chattanooga, Tenn.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.
Schofield Iron Works, Macon, Ga.
Southern Boiler & Tank Works, Memphis, Tenn.
Struthers-Wells Co., Warren, Pa.
Tennessee Metal Culvert Co., Nashville, Tenn.
Twin City Boiler Works, Bristol, Va.-Tenn.
Virginia Bridge & Iron Co., Roanoke, Va.
Walsh & Weidner Boiler Co., Chattanooga, Tenn.

PACKING HOUSE.
Dayton Heater & Hoist Co., Dayton, Ohio.

WOOD.
Caldwell Co., Inc., W. E., Louisville, Ky.
Davis & Son, G. M., Palauka, Fla.

Tapes. (Measuring.)
Lufkin Rule Co., Saginaw, Mich.
Starrett Co., L. S., Athol, Mass.

Telephones. (Supplies, Equipment.)
Piedmont Electric Co., Asheville, N. C.
Western Electric Co., New York, N. Y.

Telephones Service.
American Telephone & Telegraph Co.

Terra-Cotta. (Ornamental.)
Atlanta Terra-Cotta Co., Atlanta, Ga.
Pomona Terra-Cotta Co., Pomona, N. C.
Southern Building Material Co., Norfolk, Va.

Threshers.
Cardwell Machine Co., Richmond, Va.

Tiering Machines. (Portable.)
Economy Engineering Co., Chicago, Ill.

Tile.
DRAIN.
Oconee Brick & Tile Co., Milledgeville, Ga.
FLOOR, WALL, MANTEL, ETC.
Amer. Enam. Brick & Tile Co., New York, N. Y.
Hood Brick Co., B. Mifflin, Atlanta, Ga.
Northcross Mantel Co., W. J., Memphis, Tenn.

STRUCTURAL.
Oconee Brick & Tile Co., Milledgeville, Ga.

Timbers. (Crescoted.)
American Crescote Works, New Orleans, La.
Republic Crescote Co., Indianapolis, Ind.

Time Recorders.
Kaiser, Louis E., Baltimore, Md.

Tin and Terne Plates.
American Sheet & Tin Plate Co., Pittsburgh, Pa.

Tobacco Machinery.
Buckeye Iron & Brass Works, Dayton, O.
Cardwell Machine Co., Richmond, Va.
Ripley Foundry and Machine Co., Ripley, Ohio.

Toilets. (Wa'eries, Sewerless.)
Kausine Co., Inc., Buffalo, N. Y.

Tools.
MECHANICAL.
Starrett Co., L. S., Athol, Mass.

PNEUMATIC.
Chicago Pneumatic Tool Co., Chicago, Ill.
Independent Pneumatic Tool Co., Chicago, Ill.
Ingersoll-Rand Co., New York, N. Y.

Torches.
Wall Mfg. Supply Co., P. Alzheny, Pa.

Towers.
ELECTRIC TRANSMISSION.
American Bridge Co., New York, N. Y.
Blaw Steel Construction Co., Pittsburgh, Pa.
Scaife & Sons Co., Wm. B., Pittsburgh, Pa.

STEEL AND WOOD.
Caldwell & Co., Inc., W. E., Louisville, Ky.
Chattanooga Boiler & Tank Co., Chat'n'ga, Tenn.
Chesapeake Iron Works, Baltimore, Md.
Des Moines Bridge & Iron Co., Des Moines, Ia.
Pittsburgh-Des Moines Steel Co., Pittsburgh, Pa.

Towing Lines. (For Automobile Trucks, etc.)
Broderick & Bascom Rope Co., St. Louis, Mo.

Tramway.
OVERHEAD.
Amburns Co. (Tramway Department), New York, N. Y.
Spelal, J. G., Reading, Pa.
Yale & Towne Mfg. Co., New York, N. Y.

PORTABLE.
Amburns Co. (Tramway Department), New York, N. Y.

WIRE ROPE.
Amburns Co., (Tramway Department), New York, N. Y.
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.
Caldwell & Son Co., H. W., Chicago, Ill.
Link-Belt Co., Philadelphia, Pa.
Roebing's Sons Co., John A., Trenton, N. J.
Waterbury Co., New York, N. Y.

Transformers.
Crocker-Wheeler Co., Ampere, N. J.
Triumph Electric Co., Cincinnati, O.

Trench Excavator. [See Excavator (Trench).]

Trolleys. (Steel.)
Wright Mfg. Co., Lisbon, O.

Trucks.
DRY KILN.
Moore Dry Kiln Co., L., Jacksonville, Fla.

MOTOR. (See Motor Truck.)
Kelly-Springfield Motor Truck Co., Springfield, O.
Packard Motor Car Co., Detroit, Mich.
White Co., Cleveland, O.

PLATFORM, FREIGHT, MILL, FACTORY, ETC.
Chase Fdry. & Mfg. Co., Columbus, O.
Whitehurst Mfg. Corp., R. W., Norfolk, Va.

Trust Companies. [See Bankers and Brokers.]

Tubes. (Boiler.)
Allegheny Steel Co., Pittsburgh, Pa.
Cincinnati Iron & Steel Co., Cincinnati, O.

Tube Well Strainers.
Cook, A. D., Lawrenceburg, Ind.

Tubing.
La Belle Iron Works, Steubenville, O.
Youngstown Sheet & Tube Co., Youngstown, O.

Turbines.
HYDRAULIC.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
Leffel & Co., James, Springfield, O.
Salem Foundry & Mach. Wks., Salem, Va.
Smith Co., S. Morgan, York, Pa.

STEAM.
Allis-Chalmers Mfg. Co., Milwaukee, Wis.
General Electric Co., Schenectady, N. Y.
Startravert Co., H. F., Hyde Park, Boston, Mass.
Western Electric Co., New York, N. Y.
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Well Ties.
Niagara Falls Metal Stamping Wks., Niagara Falls, N. Y.

Washers.
GRAPHITE AND BRONZE OILERS.
Bound Brook Oil-less Bearing Co., Bound Brook, N. J.

ORE AND PHOSPHATE.
Bailey-Lobby Co., Charleston, S. C.
Cameron & Barkley Co., Charleston, S. C.
McLanahan-Stone Mach. Co., Hollidaysburg, Pa.

SAND AND GRAVEL.
Honney Supply Co., Inc., Rochester, N. Y.

Washers and Rivets. [See Bolts, Nuts, Rivets, Studs and Washers.]

Watchman's Portable Clocks. [See Clocks [Watchman's Portable].]

Water Filters. [See Filters, Water, etc.]

Waterproofing. (For Brick, Concrete, Granite, etc.)
Baltimore Roofing & Asbestos Mfg. Co., Asbestos, Md.
Barnett Co., New York, N. Y.
Johns-Manville Co., H. W., New York, N. Y.

Water-Softening Apparatus. (Purifying)
American Water Softener Co., Philadelphia, Pa.
International Filter Co., Chicago, Ill.
N. Y. Cont. Jewel Filter Co., New York, N. Y.
Pittsburgh Filter Mfg. Co., Pittsburgh, Pa.
Tucker & Laxton, Charlotte, N. C.

Water-Wheels. [See Turbines, (Hydraulic).]

Water-Works, Supplies and Appliances.
Allen-Scales Engineering Co., Inc., Nashville, Tenn.
American Cast Iron Pipe Co., Birmingham, Ala.
American Pipe & Constr. Co., Philadelphia, Pa.
Bourbon Copper & Brass Wks. Co., Cincinnati, O.
Clow & Sons, James B., Chicago, Ill.
Caldwell-Wilcox Co., Newburgh, N. Y.
Columbian Iron Works, Chattanooga, Tenn.
Donaldson Iron Co., Emaus, Pa.
Glamorgan Pipe & Foundry Co., Lynchburg, Va.
Keystone Driller Co., Beaver Falls, Pa.
Layne & Bowler Co., Houston, Tex.
Masillon Iron & Steel Co., Masillon, Ohio.
Pomona Terra-Cotta Co., Pomona, N. C.
Salem Fdry. & Machine Works, Salem, Va.
Standard Cast Iron Pipe & Fdry. Co., Bristol, Pa.
Standard Spiral Pipe Works, Chicago, Ill.
U. S. Cast Iron Pipe & Fdry. Co., Burlington, N. J.
Wood & Co., R. D., Philadelphia, Pa.

Wax. (For Belts.)
West Texas Products Co., San Antonio, Texas.

Welding Plants. (Oxy-Acetylene.)
Milburn Co., Alex. N., Baltimore, Md.
Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

Welding Apparatus. (Oxy-Acetylene Process.)
Prest-O-Lite Co., Inc., The, Indianapolis, Ind.

Well Contractors. (Oil, Artesian, etc.)
Cook, A. D., Lawrenceburg, Ind.
Hughes Specialty Well Drilling Co., Charleston, S. C.

Well Tools and Supplies.
Cook, A. D., Lawrenceburg, Ind.
Keystone Driller Co., Beaver Falls, Pa.
Williams Bros., Ithaca, N. Y.

Wheels and Axles.
Electric Wheel Co., Mrs., Quincy, Ill.
Oliver Mfg. Co., W. J., Knoxville, Tenn.

Window Frames and Sash. (Fireproof)
Detroit Steel Products Co., Detroit, Mich.
Edwards Mfg. Co., The, Cincinnati, O.
Wagner's Sons Co., J. F., Louisville, Ky.

Window Guards. (Wire.) [See Wire Goods.]

Windmills.
Caldwell Co., Inc., W. E., Louisville, Ky.

Wire.
BARBED WIRE, ETC.
American Steel & Wire Co., Chicago, Ill.
Cyclops Fence Co., Waukegan, Ill.
Gulf States Steel Co., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

FLAT AND ROUND.
Roebing's Sons Co., John A., Trenton, N. J.

GALVANIZED AND ANNEALED.
American Steel & Wire Co., Chicago, Ill.
Gulf States Steel Co., Birmingham, Ala.

SPECIAL SHAPED.
Roebing's Sons Co., John A., Trenton, N. J.

STRAND. (Common and Special Strength.)
Roebing's Sons Co., John A., Trenton, N. J.

TELEPHONE, TELEGRAPH.
American Steel & Wire Co., Chicago, Ill.
Roebing's Sons Co., John A., Trenton, N. J.

Wire Cloth. (Iron, Steel, Brass, etc.)
Caldwell & Son Co., The, H. W., Chicago, Ill.
Ladlow-Saylor Wire Co., St. Louis, Mo.
Meyers Mfg. Co., The, Fred. J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Goods.
Bolles Iron & Wire Wks., J. E., Detroit, Mich.
Buckeye Wire & Iron Wks., Columbus, O.
Dow Wire & Iron Works, Louisville, Ky.
Dufur & Co., Baltimore, Md.
Dufur, Baggott & Co., Baltimore, Md.
Gulf States Steel Co., Birmingham, Ala.
Meyers Mfg. Co., The, Fred. J., Hamilton, O.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Netting.
Ladlow-Saylor Wire Co., St. Louis, Mo.
New Jersey Wire Cloth Co., Trenton, N. J.

Wire Rods.
Gulf States Steel Co., Birmingham, Ala.

Wire Rope. [See Rope (Wire).]

Wire Rope Clips.
American Steel & Wire Co., Chicago, Ill.
Broderick & Bascom Rope Co., St. Louis, Mo.

Wood Distillation.
Struthers-Wells Co., Warren, Pa.

Wood Pipe. (For Water, etc.)
Wyckoff & Son Co., A. A., Elmira, N. Y.

Wood. (Preservative.)
Barnett Co., New York, N. Y.
Reeves Co., The, New Orleans, La.

Woodworking Machinery.
Kline, Lewis T., Alpena, Mich.

Wrenches. (Alligator)
Roebing's Sons Co., John A., Trenton, N. J.

Yarn. (Tarted Sial.)
Columbian Rope Co., Auburn, N. Y.

ADVERTISERS

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A Abendroth & Root Mfg. Co., Inc. 32 Abilene Chamber of Commerce 87 Aetna Explosive Co., Inc. 116 Ahlers & Gregoire 1 Alabama Engineering Corp. 76 Alabama Mining & Mineral Co. 91 Albany Lubricating Co. 7 Alberger Pump & Cond. Co. 7 Allgheny Steel Co. 21 Allen Mfg. Co., Inc. 15 Allens-Scales Eng. Co. 78 Allis-Chalmers Mfg. Co. 2 Alpha Photo-Engraving Co. 100 Aluminum Co. of America 6 Amberson Co. (Tramway Dept.) 3 American Ballist Co. 26 American Bridge Co. 30 American Casting Co. 30 Amer. Cast Iron Pipe Co. 30 American Cement Tile Mfg. Co. 29 American Clay Mfg. Co. 96 American Cotton Oil Co. 33 American Gypsum Works 23 American Electric Mch. & E- lectrical Co. 4 Amer. Elevator & Mch. Co. 15 Amer. Enam. Brick & Tile Co. 15 American Frog & Switch Co. 29 American Iron Scale Co. 91 Amer. Pipe & Joiner Co. 32 American Process Co. 28 Amer. Sheet & Tin Plate Co. 28 Amer. Spiral Pipe Works 31 American Steel Bridge Co. 85 American Steel & Wire Co. 115 American Supply Co. of Provi- dence, R. 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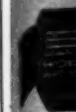
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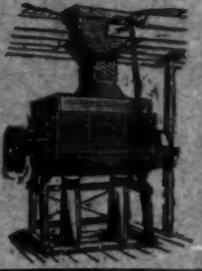
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